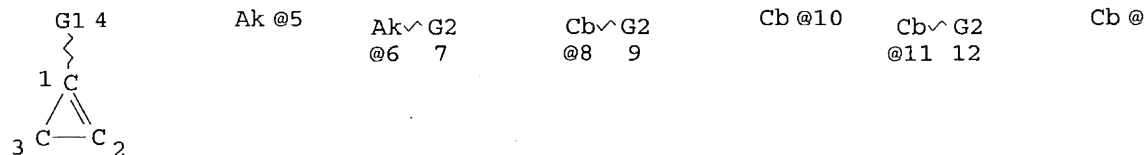


=> d que 122

L7

STR



$$\begin{array}{ccccc}
 Cb\ \wedge\ G2 & Ak\ \wedge\ Cb & Ak\ \wedge\ Cb\ \wedge\ G2 & O\ \sim\ Ak & O\ \sim\ Cb \\
 @14\ 15 & @16\ 17 & @18\ 19\ 20 & @21\ 22 & @23\ 24
 \end{array}$$

Page 1-A

13

Page 1-B

VAR G1=H/5/6/PH/8/10/11/13/14/16/18

VAR G2=X/21/23

NODE ATTRIBUTES:

CONNECT IS E2 RC AT 2
CONNECT IS E2 RC AT 3
CONNECT IS E1 RC AT 5
CONNECT IS E1 RC AT 10
CONNECT IS E1 RC AT 13
CONNECT IS E2 RC AT 16
CONNECT IS E1 RC AT 17
CONNECT IS E2 RC AT 18
CONNECT IS E1 RC AT 22
DEFAULT MLEVEL IS ATOM
GGCAT IS MCY UNS AT 8
GGCAT IS PCY UNS AT 10
GGCAT IS PCY UNS AT 11
GGCAT IS SAT AT 13
GGCAT IS SAT AT 14
GGCAT IS SAT AT 17
GGCAT IS SAT AT 19
GGCAT IS MCY UNS AT 24
DEFAULT ECLEVEL IS LIMITED
ECOUNT IS E6 C AT 8
ECOUNT IS E10 C AT 10
ECOUNT IS E10 C AT 11
ECOUNT IS E6 C AT 24

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 24

STEREO ATTRIBUTES: NONE

L9 266066 SEA FILE=REGISTRY ABB=ON PLU=ON C3/ES
L11 132 SEA FILE=REGISTRY SUB=L9 SSS FUL L7
L13 41 SEA FILE=HCAPLUS ABB=ON PLU=ON L11 (L) AGR/RL
L14 126 SEA FILE=AGRICOLA ABB=ON PLU=ON L11
L15 19 SEA FILE=AGRICOLA ABB=ON PLU=ON Q105/CC AND L14
L17 25632 SEA FILE=AGRICOLA ABB=ON PLU=ON Q505/CC OR Q115/CC

L18 49 SEA FILE=AGRICOLA ABB=ON PLU=ON L17 AND L14
 L19 50 SEA FILE=AGRICOLA ABB=ON PLU=ON L18 OR L15
 L22 86 DUP REM L13 L19 (5 DUPLICATES REMOVED)

=> d l22 ibib ab hitstr 1-86

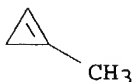
L22 ANSWER 1 OF 86 HCAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 1
 ACCESSION NUMBER: 2001:523067 HCAPLUS
 DOCUMENT NUMBER: 135:222777
 TITLE: Ripening and quality responses of avocado, custard
 apple, mango and papaya fruit to 1-methylcyclopropene
 AUTHOR(S): Hofman, P. J.; Jobin-Decor, M.; Meiburg, G. F.;
 Macnish, A. J.; Joyce, D. C.
 CORPORATE SOURCE: Maroochy Research Station, Department of Primary
 Industries, Queensland Horticulture Institute,
 Nambour, QLD 4560, Australia
 SOURCE: Australian Journal of Experimental Agriculture (2001),
 41(4), 567-572
 CODEN: AJEAEI; ISSN: 0816-1089
 PUBLISHER: CSIRO Publishing
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB The potential for the ethylene binding inhibitor, 1-methylcyclopropene, to delay ripening of "Hass" avocado, "African Pride" custard apple, "Kensington Pride" mango and "Solo" papaya was examined. Fruit were gassed with 25 µL/L 1-methylcyclopropene for 14 h at 20°C, followed by treatment with 100 µL/L ethylene for 24 h, and then ripened at 20°C. Ethylene treatment alone halved the number of days for fruit to reach the ripe stage, compared with untreated fruit. 1-Methylcyclopropene treatment alone increased the number of days to ripening by 4.4 days (40% increase), 3.4 days (58%), 5.1 days (37%) and 15.6 days (325%) for avocado, custard apple, mango and papaya, resp., compared with untreated fruit. Applying 1-methylcyclopropene to the fruit before ethylene prevented the accelerated ripening normally associated with ethylene treatment, so that the number of days to ripening for fruit treated with 1-methylcyclopropene plus ethylene was similar to the number of days to ripening for fruit treated with 1-methylcyclopropene alone. 1-Methylcyclopropene treatment was associated with slightly higher severity of external blemishes in papaya and custard apple, slightly higher rots severity in avocado, custard apple and papaya, and at least double the severity of stem rots in mango, relative to fruit not treated with 1-methylcyclopropene. Thus, 1-methylcyclopropene treatment has the potential to reduce the risk of premature ripening of avocado, custard apple, mango and papaya fruit due to accidental exposure to ethylene. However, addnl. precautions may be necessary to reduce disease severity associated with 1-methylcyclopropene treatment.

IT 3100-04-7, 1-Methylcyclopropene
 RL: AGR (Agricultural use); BIOL (Biological study); USES (Uses)
 (ripening and quality responses of avocado, custard apple, mango and
 papaya fruit to 1-methylcyclopropene)

RN 3100-04-7 HCAPLUS

CN Cyclopropene, 1-methyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



REFERENCE COUNT: 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 2 OF 86 HCAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 2

ACCESSION NUMBER: 2000:851568 HCAPLUS

DOCUMENT NUMBER: 134:162157

TITLE: Impacts of Ionizing Radiation on Volatile Production by Ripening Gala Apple Fruit

AUTHOR(S): Fan, Xuetong; Argenta, Luiz; Mattheis, James

CORPORATE SOURCE: Eastern Regional Research Center Agricultural Research Service, U.S. Department of Agriculture, Wyndmoor, PA, 19038, USA

SOURCE: Journal of Agricultural and Food Chemistry (2001), 49(1), 254-262

CODEN: JAFCAU; ISSN: 0021-8561

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Apple (*Malus x domestica* Borkh., cv. Gala) fruit treated with 0.5 $\mu\text{L}\cdot\text{L}^{-1}$ 1-methylcyclopropene (MCP) or air (non-MCP) for 12 h at 20 °C were exposed to gamma radiation at doses of 0, 0.44, 0.88, or 1.32 kGy at 23 °C and then stored at 20 °C. Production of volatile compds. was measured on the day of irradiation and 1, 3, 7, 14, and 21 days after irradiation Both MCP treatment and irradiation inhibited ethylene

production MCP treatment reduced production of all volatile esters and alcs. detected, whereas irradiation inhibited production of most, but not all, esters and some alcs. by non-MCP-treated fruit. The inhibition of volatile production following irradiation increased with dose. Production of Me and Pr esters

was inhibited more than that of other esters following irradiation or MCP treatment. The impact of irradiation on production of esters and alcs. by MCP-treated fruit was minimal. Non-MCP-treated fruit irradiated at 0.44 kGy produced the most esters during the 21-day period at 20 °C following irradiation, and the ester production rate in these fruit was

comparable to that of the nonirradiated fruit 21 days after irradiation Fruit treated with doses higher than 0.44 kGy did not recover their ability to produce volatile compds. These results indicate both MCP and ionizing radiation inhibit production of many aroma compds. produced by ripening apple fruit.

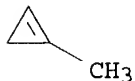
IT 3100-04-7, 1-Methylcyclopropene

RL: AGR (Agricultural use); BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study); USES (Uses)

(ionizing radiation impact on volatile ester and alc. production by ripening gala apple fruit)

RN 3100-04-7 HCAPLUS

CN Cyclopropene, 1-methyl- (7CI, 8CI, 9CI) (CA INDEX NAME)

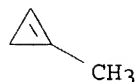


REFERENCE COUNT: 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 3 OF 86 HCAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 3

ACCESSION NUMBER: 1999:257211 HCAPLUS
DOCUMENT NUMBER: 130:334078
TITLE: Methyl jasmonate promotes apple fruit degreening
independently of ethylene action
AUTHOR(S): Fan, Xuetong; Mattheis, James P.
CORPORATE SOURCE: U.S. Department of Agriculture, Agricultural Research
Service, Tree Fruit Research Laboratory, Wenatchee,
WA, 98801, USA
SOURCE: HortScience (1999), 34(2), 310-312
CODEN: HJHSAR; ISSN: 0018-5345
PUBLISHER: American Society for Horticultural Science
DOCUMENT TYPE: Journal
LANGUAGE: English

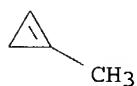
AB Climacteric 'Fuji' apples (*Malus domestica* Borkh.) were treated with
water, 0.45 mmol•m⁻³ 1-methylcyclopropene (MCP), 2 mmol•L⁻¹ Me
jasmonate (MJ), or both MCP and MJ. Fruit were kept at 20 °C for
17 days after treatment. Ethylene production, respiration, and color change
were all inhibited following MCP treatment. Ethylene production following MJ
treatment fluctuated below and above that of controls, but was
representative of postclimacteric apples at all times. Rates of
respiration and color change were enhanced by MJ, even when fruit were
previously treated with MCP. The results indicate that MJ can enhance
rate of color change and respiration in apple fruit independently of
ethylene action.
IT 3100-04-7, 1-Methylcyclopropene
RL: AGR (Agricultural use); BAC (Biological activity or
effector, except adverse); BSU (Biological study, unclassified); BIOL
(Biological study); USES (Uses)
(respiration and ethylene production of apple response to)
RN 3100-04-7 HCAPLUS
CN Cyclopropene, 1-methyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



IT 224425-78-9
RL: AGR (Agricultural use); BAC (Biological activity or
effector, except adverse); BSU (Biological study, unclassified); BIOL
(Biological study); USES (Uses)
(respiration, color change, and ethylene production of apple response to)
RN 224425-78-9 HCAPLUS
CN Cyclopentaneacetic acid, 3-oxo-2-(2Z)-2-pentenyl-, methyl ester, (1R,2R)-,
mixt. with 1-methylcyclopropene (9CI) (CA INDEX NAME)

CM 1

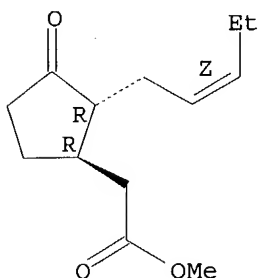
CRN 3100-04-7
CMF C4 H6



CM 2

CRN 1211-29-6
CMF C13 H20 O3

Absolute stereochemistry. Rotation (-).
Double bond geometry as shown.



REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 4 OF 86 HCAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 4

ACCESSION NUMBER: 1999:641597 HCAPLUS

DOCUMENT NUMBER: 132:49328

TITLE: Effect of 1-methylcyclopropene on the storage life of broccoli

AUTHOR(S): Ku, V. V. V.; Wills, R. B. H.

CORPORATE SOURCE: Faculty of the Central Coast, Centre for Food Industry Research and Development, University of Newcastle, Ourimbah, Australia

SOURCE: Postharvest Biology and Technology (1999), 17(2), 127-132

CODEN: PBTEED; ISSN: 0925-5214

PUBLISHER: Elsevier Science Ireland Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Broccoli (Brassica oleracea, cv Green Belt) florets were treated with 1-methylcyclopropene (MCP) at concns. of 0.02-50 μ L L-1 for 1-6 h at 20°, followed by storage at 20 or 5° in air containing 0.1 μ L L-1 ethylene and treatment at 5°, followed by storage at 5°. MCP extended the storage life through a delay in the onset of yellowing at 20 and 5° and in development of rotting at 5°. The beneficial effects at both temps. were dependent upon concentration and storage time. For broccoli treated and stored at 20°, maximum storage life extension of >100% was achieved with exposure to 1 μ L L-1 MCP for 6 h while a 50% increase in storage life was obtained with treatment for 1 h. For storage at 5°, treatment at 20° was more effective in extending storage life than treatment at 5°; treatment with 1 μ L L-1 MCP for 6 h at 20° resulted in 250% extension in storage life compared to 200% when treated at 5°. These effects of MCP are likely to be of com. significance.

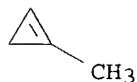
IT 3100-04-7, 1-Methylcyclopropene

RL: AGR (Agricultural use); FFD (Food or feed use); BIOL (Biological study); USES (Uses)

(effect of 1-methylcyclopropene on the storage life of broccoli)

RN 3100-04-7 HCAPLUS

CN Cyclopropene, 1-methyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 5 OF 86 HCAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 5

ACCESSION NUMBER: 1998:579723 HCAPLUS

DOCUMENT NUMBER: 130:91592

TITLE: Responses of climacteric and suppressed-climacteric plums to treatment with propylene and 1-methylcyclopropene

AUTHOR(S): Abdi, Nasser; McGlasson, William B.; Holford, Paul; Williams, Mark; Mizrahi, Yosef

CORPORATE SOURCE: Centre for Horticulture and Plant Sciences, UWS Hawkesbury, Richmond, 2753, Australia

SOURCE: Postharvest Biology and Technology (1998), 14(1), 29-39

CODEN: PBTEED; ISSN: 0925-5214

PUBLISHER: Elsevier Science Ireland Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

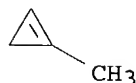
AB The aim was to characterize further the ripening behavior of climacteric ('Gulfruby' and 'Beauty') and suppressed-climacteric ('Shiro' and 'Rubyred') plums by treating preclimacteric fruit with 1-methylcyclopropene (1-MCP) followed by continuous treatment with propylene. Development of skin color was an ethylene-independent phenomenon, while aroma production was either ethylene-dependent or ethylene-independent, depending on the cultivar. Typical climacteric patterns of ripening were shown by 'Gulfruby' and 'Beauty' fruit, as the application of propylene alone advanced the onset of the respiratory and ethylene climacterics, while 1-MCP delayed these events. 'Shiro' and 'Rubyred' fruit exhibited suppressed-climacteric patterns or ripening associated with 15-500-fold less ethylene production than the climacteric cultivars. Since 1-aminocyclopropane-1-carboxylic acid (ACC) concns. were similar in all four cultivars, it is suggested that the suppressed-climacteric phenotype is the result of an impaired ability of the fruit to convert ACC to ethylene. Fruit of these cultivars treated with 1-MCP did not develop an ethylene or respiratory climacteric unless exogenous propylene was applied. The inability of 1-MCP treated suppressed-climacteric fruit to develop a climacteric results from an impaired ability of the fruit to perceive ethylene and to produce new receptors.

IT 3100-04-7, 1-Methylcyclopropene

RL: AGR (Agricultural use); BIOL (Biological study); USES (Uses) (responses of climacteric and suppressed-climacteric plums to propylene and 1-methylcyclopropene)

RN 3100-04-7 HCAPLUS

CN Cyclopropene, 1-methyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



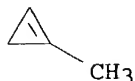
REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 6 OF 86 HCAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 2004:120551 HCAPLUS
 DOCUMENT NUMBER: 140:159050
 TITLE: Compositions for promoting potato sprouting and sprout elongation comprising ethylene inhibitors
 INVENTOR(S): Hansen, James; Woolard, Derek; Ju, Zhiguo; Warrior, Prem; Petracek, Peter D.
 PATENT ASSIGNEE(S): Valent Biosciences Corporation, USA
 SOURCE: U.S. Pat. Appl. Publ., 7 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---------------|------|----------|-----------------|----------|
| US 2004029736 | A1 | 20040212 | US 2002-324979 | 20021219 |
| WO 2004014137 | A1 | 20040219 | WO 2002-US41047 | 20021219 |

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 2002-402353P P 20020809
 AB A method for increasing the number of potato sprouts per tuber and promoting the elongation of the sprouts, comprises the steps of administering an effective amount of aminoethoxyvinylglycine or 1-methylcyclopropene to the tuber to promote sprouting in the tuber and sprout elongation. A method for reducing sprout tip necrosis comprises the steps of administering an effective amount of aminoethoxyvinylglycine to the tuber to reduce sprout tip necrosis.
 IT 3100-04-7, 1-Methylcyclopropene
 RL: AGR (Agricultural use); BSU (Biological study, unclassified); BIOL (Biological study); USES (Uses)
 (comps. for promoting potato sprouting and sprout elongation comprising)
 RN 3100-04-7 HCAPLUS
 CN Cyclopropene, 1-methyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



L22 ANSWER 7 OF 86 HCAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 2004:618731 HCAPLUS
 DOCUMENT NUMBER: 141:118629
 TITLE: Delivery systems for cyclopropene derivative plant

growth regulators
INVENTOR(S): Lamola, Angelo Anthony; Jacobson, Richard Martin;
Norris, Philip Roy
PATENT ASSIGNEE(S): Rohm and Haas Company, USA
SOURCE: U.S., 8 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------|------|----------|-----------------|----------|
| US 6770600 | B1 | 20040803 | US 2003-376992 | 20030228 |

PRIORITY APPLN. INFO.: US 2003-376992 20030228

AB The invention relates to delivery generators for cyclopropene derivative plant growth regulators, comprising at least one substrate, a material containing at least one cyclopropene derivative and a release agent. At least one side of one substrate is coated with the material containing at least one cyclopropene derivative and wherein when the material containing at least one cyclopropene derivative is exposed to the release agent and a gaseous cyclopropene derivative is released. The generator delivers a cyclopropene derivative to plants, fruits, flowers or vegetables to inhibit ethylene response.

IT 2781-85-3D, Cyclopropene, derivs. 3100-04-7, 1-MCP
RL: AGR (Agricultural use); BIOL (Biological study); USES (Uses)
(delivery systems for cyclopropene derivative plant growth regulators)

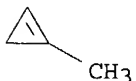
RN 2781-85-3 HCAPLUS

CN Cyclopropene (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 3100-04-7 HCAPLUS

CN Cyclopropene, 1-methyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 8 OF 86 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2004:285672 HCAPLUS

DOCUMENT NUMBER: 140:334058

TITLE: Effects of exogenous ethylene and 1-MCP on ACC oxidase activity, ethylene production and vase life in Cattleya alliances

AUTHOR(S): Yamane, Kenji; Yamaki, Yoshikazu; Fujishige, Nobuaki

CORPORATE SOURCE: Fac. Agric., Utsunomiya Univ., Utsunomiya, 321-8505, Japan

SOURCE: Journal of the Japanese Society for Horticultural Science (2004), 73(2), 128-133
CODEN: EGKZA9; ISSN: 0013-7626

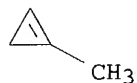
PUBLISHER: Engei Gakkai
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Pretreatment of cut florets of *Laeliocattleya* (Lc.) Irene Finney 'York' with 0.1 $\mu\text{L}\cdot\text{liter}^{-1}$ ethylene for 24 h promoted ACC oxidase activity in petals and ethylene formation by florets 3 days after harvest (DAH), and shortened the vase life from 7.5 to 4.0 days. The ethylene treatment did not affect ACC concentration or ACC synthase activity in the petals. Pretreatments with 1-methylcyclopropene (1-MCP) at 0.25, 0.5 and 1 $\mu\text{L}\cdot\text{liter}^{-1}$ for 4 h significantly prolonged the vase life of *Cattleya* alliances. In *Brassolaeliocattleya* Mem. Robert Hack 'Villa Park', 1 $\mu\text{L}\cdot\text{liter}^{-1}$ 1-MCP application suppressed ACC oxidase activity and ethylene formation until 2 DAH and doubled their vase life; ethylene formation substantially increased after 4 DAH. There was no difference between single and repeated application of 1-MCP in prolonging vase life in Lc. Sweet Meringue 'Puriavera'. A 5% sucrose vase solution prolonged the vase life of 'Villa Park' and Lc. Irene Finney 'Rachel'. A combined treatment of 1-MCP and BA had synergistic effects on the vase life of 'Villa Park'. A combined treatment of 1-MCP, sucrose and BA was most effective in prolonging vase life. These results indicate that optimum application of 1-MCP with or without sucrose and BA is feasible to prolong vase life of *Cattleya* alliances.

IT 3100-04-7, 1-Methylcyclopropene
RL: AGR (Agricultural use); BSU (Biological study, unclassified); BIOL (Biological study); USES (Uses)
(effects of exogenous ethylene and 1-MCP on ACC oxidase activity, ethylene formation, and vase life in *Cattleya* alliances)

RN 3100-04-7 HCAPLUS

CN Cyclopropene, 1-methyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



L22 ANSWER 9 OF 86 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2004:97079 HCAPLUS

DOCUMENT NUMBER: 141:2797

TITLE: Control of ethylene activity in various plant systems by structural analogues of 1-methylcyclopropene
AUTHOR(S): Feng, Xuqiao; Apfelbaum, Akiva; Sisler, Edward C.; Goren, Raphael

CORPORATE SOURCE: The Kennedy Leigh Centre for Horticultural Research, Food and Environmental Quality Science, Faculty of Agricultural, The Hebrew University of JerusalemSouthwest Agricultural University, Beibei, Rehovot, 76100, Israel

SOURCE: Plant Growth Regulation (2004), 42(1), 29-38
CODEN: PGRED3; ISSN: 0167-6903

PUBLISHER: Kluwer Academic Publishers

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Two structural analogs of 1-methylcyclopropene (1-MCP), 1-ethylcyclopropene (1-ECP) and 1-propylcyclopropene (1-PCP) were found to inhibit ethylene action and thereby the responses to ethylene in various plant systems. When applied prior to exposure to ethylene, the analogs considerably delayed ethylene-induced ripening of avocado and tomato

fruits, delayed citrus leaf explants abscission and reversed ethylene-induced swelling and inhibition of elongation in etiolated pea plants. The analogs exerted their effect in a concentration-depended manner,

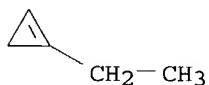
at

a range of several ppm. Of the two analogs, 1-ECP was in all cases more potent than 1-PCP but less potent than 1-MCP. It is proposed that the analogs inhibit ethylene action by competing for the sites of binding on the ethylene receptor, similar to the mode of action suggested for 1-MCP. Findings revealed in this study imply that the competition of ethylene and the analogs for the ethylene site of binding is of a noncompetitive nature. The analogs effectively inhibited ethylene action only if applied before the plant material was exposed to ethylene, or in the case of fruits shortly after harvest. Simultaneous application of the analogs and ethylene reduced the inhibitory effect of the analogs. Application of the analogs after exposure to ethylene or after fruit ripening had nullified the inhibitory effect of the analogs. Ripening of fruits, treated with the analogs, was inhibited for a finite period of time after which the fruits ripened normally. This resumption of ripening ability is attributed to presence of free binding sites on the ethylene receptor at the point of recovery from the inhibition. As the analogs are volatile, noncorrosive, nontoxic, odorless compds. and effective at minute concns., they can be considered promising candidates for practical use.

IT 34189-00-9, 1-Ethylcyclopropene 404901-55-9
 RL: AGR (Agricultural use); BSU (Biological study, unclassified); BIOL (Biological study); USES (Uses)
 (inhibition of ethylene action in plant systems by methylcyclopropene analogs with potential for agricultural use)

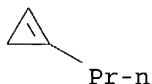
RN 34189-00-9 HCAPLUS

CN Cyclopropene, 1-ethyl- (8CI, 9CI) (CA INDEX NAME)



RN 404901-55-9 HCAPLUS

CN Cyclopropene, 1-propyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 10 OF 86 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2004:403575 HCAPLUS

DOCUMENT NUMBER: 141:152483

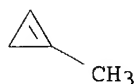
TITLE: Implications of 1-methylcyclopropene registration for use on horticultural products

AUTHOR(S): Watkins, C. B.; Miller, W. B.

CORPORATE SOURCE: Department of Horticulture, Cornell University, Ithaca, NY, 14853, USA

SOURCE: NATO Science Series, Series I: Life and Behavioural Sciences (2003), 349(Biology and Biotechnology of the Plant Hormone Ethylene III), 385-390

CODEN: NSSSC9; ISSN: 1566-7693
PUBLISHER: IOS Press
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English
AB A review. Increasing use of 1-MCP on ornamental products, and its impending registration for use on food products represents an exciting new era for the ability of industries to maintain product quality. 1-MCP is not yet extensively available for use on edible products, however, and it is necessary to speculate on its benefits and limitations under com. conditions. The literature on the effects of 1-MCP on product quality is summarized and an updated web site <<http://www.hort.cornell.edu/departement/faculty/watkins/ethylene/>> has been established. The effects of cultivar, maturity and ripening, flavor, physiol. disorders and disease incidence on responses of horticultural products to 1-MCP are reviewed.
IT 3100-04-7, 1-Methylcyclopropene
RL: AGR (Agricultural use); BSU (Biological study, unclassified); BIOL (Biological study); USES (Uses) (implications of 1-methylcyclopropene registration for use on horticultural products)
RN 3100-04-7 HCAPLUS
CN Cyclopropene, 1-methyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

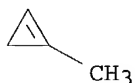
L22 ANSWER 11 OF 86 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:605907 HCAPLUS
DOCUMENT NUMBER: 140:1855
TITLE: 1-Substituted cyclopropenes: effective blocking agents for ethylene action in plants
AUTHOR(S): Sisler, Edward C.; Alwan, Thair; Goren, Raphael; Serek, Margrethe; Apelbaum, Akiva
CORPORATE SOURCE: Department of Structural and Molecular Biochemistry, North Carolina State University, Raleigh, NC, 27695-7622, USA
SOURCE: Plant Growth Regulation (2003), 40(3), 223-228
CODEN: PGRED3; ISSN: 0167-6903
PUBLISHER: Kluwer Academic Publishers
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A series of 1-alkane substituted cyclopropenes were prepared and tested as ethylene antagonists using banana fruits as an assay system. 1-Methyl-, 1-ethyl-, 1-propyl-, 1-butyl-, 1-pentyl-, 1-hexyl-, 1-heptyl-, 1-octyl-, 1-nonyl-, and 1-decylcyclopropene were all very active compds. 1-Methylcyclopropene protected bananas from ethylene with a min. concentration of 0.7 nL L-1 after a 24 h exposure. As the carbon chain length was extended, the min. requirement increased some, but starting with 1-butylcyclopropene, the min. concentration requirement declined and many cyclopropenes were required in lower concns. than 1-methylcyclopropene. The time of protection at ambient temperature (22-23°C) was 12 days for 1-methyl-, 1-ethyl-, 1-propyl-, and 1-butylcyclopropene. 1-Pentylcyclopropene protected bananas for 14 days, 1-hexylcyclopropene

for 20 days, 1-heptylcyclopropene for 21 days, 1-octylcyclopropene for 25 days, 1-nonylcyclopropene for 35 days, and 1-decylcyclopropene for 36 days.

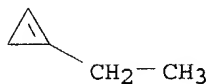
IT 2781-85-3, Cyclopropene 3100-04-7, 1-MethylCyclopropene 34189-00-9, 1-EthylCyclopropene 50915-81-6, Cyclopropene, 1-butyl 50915-82-7, Cyclopropene, 1-hexyl- 50915-83-8, Cyclopropene, 1-octyl 303021-66-1, Cyclopropene, 1-nonyl 341996-58-5, Cyclopropene, 1-decyl 341996-59-6, Cyclopropene, 1-heptyl 341996-64-3, Cyclopropene, 1-pentyl 404901-55-9, Cyclopropene, 1-propyl
 RL: AGR (Agricultural use); BIOL (Biological study); USES (Uses)
 (alkylcyclopropenes as blocking agents of ethylene action in banana fruit)
 RN 2781-85-3 HCAPLUS
 CN Cyclopropene (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



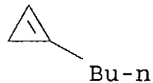
RN 3100-04-7 HCAPLUS
 CN Cyclopropene, 1-methyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



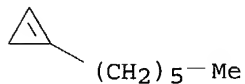
RN 34189-00-9 HCAPLUS
 CN Cyclopropene, 1-ethyl- (8CI, 9CI) (CA INDEX NAME)



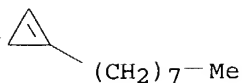
RN 50915-81-6 HCAPLUS
 CN Cyclopropene, 1-butyl- (9CI) (CA INDEX NAME)



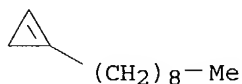
RN 50915-82-7 HCAPLUS
 CN Cyclopropene, 1-hexyl- (9CI) (CA INDEX NAME)



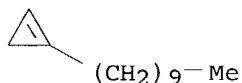
RN 50915-83-8 HCAPLUS
 CN Cyclopropene, 1-octyl- (9CI) (CA INDEX NAME)



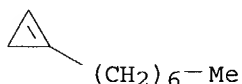
RN 303021-66-1 HCAPLUS
CN Cyclopropene, 1-nonyl- (9CI) (CA INDEX NAME)



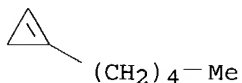
RN 341996-58-5 HCAPLUS
CN Cyclopropene, 1-decyl- (9CI) (CA INDEX NAME)



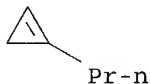
RN 341996-59-6 HCAPLUS
CN Cyclopropene, 1-heptyl- (9CI) (CA INDEX NAME)



RN 341996-64-3 HCAPLUS
CN Cyclopropene, 1-pentyl- (9CI) (CA INDEX NAME)



RN 404901-55-9 HCAPLUS
CN Cyclopropene, 1-propyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 12 OF 86 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:605906 HCAPLUS
DOCUMENT NUMBER: 139:392484
TITLE: Role of ethylene in postharvest quality of cut

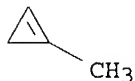
ORIENTAL LILY 'STARGAZER'

AUTHOR(S): Han, Susan S.; Miller, Jonathan A.
CORPORATE SOURCE: Department of Plant and Soil Sciences, University of
Massachusetts, Amherst, 01003-2910, USA
SOURCE: Plant Growth Regulation (2003), 40(3), 213-222
CODEN: PGRED3; ISSN: 0167-6903
PUBLISHER: Kluwer Academic Publishers
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The effects of endogenous and exogenous C₂H₄ and C₂H₄ inhibitors on the postharvest leaf and flower quality of Oriental lily 'Stargazer' were investigated. Endogenous C₂H₄ was not produced by freshly harvested excised leaves or flowers. Treatment of freshly harvested excised flowers, buds, leaves, and intact cut stems with C₂H₄ concns. as high as 10 µL L⁻¹ did not affect bud opening or longevity or the development of leaf yellowing. Therefore, treatment with anti-C₂H₄ compds., such as silver thiosulfate (STS) and 1-methylcyclopropene (1-MCP), did not improve the quality of the flowers. Data thus indicate that freshly harvested 'Stargazer' were not sensitive to C₂H₄. Sensitivity of 'Stargazer' to C₂H₄, however, increased dramatically following cold storage, as exposure of cold-stored stems to C₂H₄ concns. as low as 0.3 µL L⁻¹ significantly affected bud opening. The development of leaf yellowing on cold-stored stems was not affected by the exogenous C₂H₄. Pretreating cold-stored stems with 1-MCP significantly reduced blasting of small buds that failed to develop due to carbohydrate depletion and reduced the percentage of buds that did not fully open. Concurrently, 1-MCP did not affect the quality of the leaves. Sensitivity of cut lilies to C₂H₄ differs following cold storage and 1-MCP is a more suitable anti-C₂H₄ compound than STS. Studies on endogenous C₂H₄ production revealed that, while C₂H₄ was not detected in freshly harvested buds and leaves, it was produced by both following cold storage. The latter produced C₂H₄ at a higher rate than the former. There are two situations in which lilies will benefit from pretreatment with an anti-C₂H₄ compound, i.e. when cut stems contain buds that are marginally small for opening and when cut stems will be cold-stored before marketing.

IT 3100-04-7, 1-Methylcyclopropene
RL: AGR (Agricultural use); BIOL (Biological study); USES (Uses)
(ethylene inhibitor; role of ethylene in postharvest quality of cut oriental lily)

RN 3100-04-7 HCAPLUS
CN Cyclopropene, 1-methyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 13 OF 86 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2004:161776 HCAPLUS
DOCUMENT NUMBER: 141:19104
TITLE: Discovery and commercialization of
1-methylcyclopropene as an ethylene inhibitor
AUTHOR(S): Blankenship, S. M.
CORPORATE SOURCE: Department of Horticultural Science, North Carolina
State University, Raleigh, NC, 27695, USA

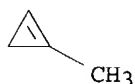
SOURCE: Acta Horticulturae (2003), 628(Vol. 1, Proceedings of the 26th International Horticultural Congress, 2002, Volume 1), 189-191
 CODEN: AHORA2; ISSN: 0567-7572
 PUBLISHER: International Society for Horticultural Science
 DOCUMENT TYPE: Journal; General Review
 LANGUAGE: English

AB A review. The discovery of 1-MCP as a potent inhibitor of ethylene action is described in this review. In the 1980's, several compds., i.e. 2,5-norbornadiene and diazocyclopentadiene (DACP) were tested as ethylene action inhibitors but were deemed to be unacceptable. The research on DACP revealed the presence of light-induced breakdown product of DACP which was very effective at inhibiting ethylene action. Through a progression of expts., cyclopropenes, such as 1-methylcyclopropene, were identified as ethylene inhibitors.

IT 3100-04-7, 1-Methylcyclopropene
 RL: AGR (Agricultural use); BSU (Biological study, unclassified); BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
 (1-methylcyclopropene as ethylene inhibitor)

RN 3100-04-7 HCAPLUS

CN Cyclopropene, 1-methyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 14 OF 86 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2003:905742 HCAPLUS

DOCUMENT NUMBER: 140:212447

TITLE: Efficacy of new inhibitors of ethylene perception in improvement of display life of kalanchoe (Kalanchoe blossfeldiana Poelln.) flowers

AUTHOR(S): Kebenei, Zeddy; Sisler, Edward C.; Winkelmann, Traud; Serek, Margrethe

CORPORATE SOURCE: Institute of Floriculture, Department of Horticulture, Tree Nursery Science and Plant Breeding, University of Hannover, Hannover, 30419, Germany

SOURCE: Postharvest Biology and Technology (2003), 30(2), 169-176

CODEN: PBTEED; ISSN: 0925-5214

PUBLISHER: Elsevier Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB 1-Hexylcyclopropene (1-HCP) and 1-octylcyclopropene (1-OCP) are potent ethylene inhibitors. Pretreatment of Kalanchoe blossfeldiana Poelln. cultivar Alexandra flowers with these compds. delayed inrolling and extended the display life of flowers. 1-OCP was most effective at concns. of 200 and 500 nL L-1 while 1-HCP was effective at 1000 and 2000 nL L-1 being 5 to 10 fold higher than the concentration of 1-methylcyclopropene (1-MCP) (200 nL L-1) used as standard/control. 1-OCP however, prolonged the display life of individual flowers to almost 10 days and was significantly better than 200 nL L-1 1-MCP. The effectiveness of 1-HCP and 1-OCP was a

function of time and temperature At short (0.5 h) exposure times, the flowers were highly sensitive to ethylene that translated to a commensurate decrease in display life. Exposure time of 2 h for both 1-HCP and 1-OCF was sufficient and any longer treatments did not have any addnl. effect. Treatment temperature did not have an influence on the performance of 1-HCP and was depicted by lack of significance on display life at all temperature levels (5, 10, 15, 20 °C). 1-OCF was effective at 15 and 20 °C, while lower temps. reduced its performance. Reasons for differences in effects of these compds. are discussed.

IT 50915-82-7, 1-Hexylcyclopropene

RL: AGR (Agricultural use); BIOL (Biological study); USES (Uses)

(efficacy ethylene perception inhibitors in improvement of display life of kalanchoe flowers)

RN 50915-82-7 HCAPLUS

CN Cyclopropene, 1-hexyl- (9CI) (CA INDEX NAME)



(CH₂)₅-Me

REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 15 OF 86 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:240540 HCAPLUS

DOCUMENT NUMBER: 136:258724

TITLE: Effervescent tablets for counteracting an ethylene response in plants

INVENTOR(S): Chang, William T. H.; Yang, Ren-Der

PATENT ASSIGNEE(S): Lytton Enterprise, Inc., Taiwan; Chang, William T.H.

SOURCE: PCT Int. Appl., 14 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------|--|----------|-----------------|------------|
| WO 2002024171 | A1 | 20020328 | WO 2000-US25979 | 20000922 |
| W: | AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | |
| RW: | GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG | | | |
| AU 2000076023 | A5 | 20020402 | AU 2000-76023 | 20000922 |
| PRIORITY APPLN. INFO.: | | | WO 2000-US25979 | A 20000922 |

AB Disclosed is an effervescent tablet dosage for inhibiting ethylene response in a plant containing a blocking agent, which has ethylene binding site inhibition activity to plants, and an effervescent ingredient in admixt. with one or more excipients.

IT 2781-85-3, Cyclopropene 3100-04-7, 1-MethylCyclopropene

RL: AGR (Agricultural use); BIOL (Biological study); USES (Uses)

(active ingredient in effervescent tablets for counteracting an ethylene response in plants)

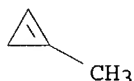
RN 2781-85-3 HCAPLUS

CN Cyclopropene (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 3100-04-7 HCAPLUS

CN Cyclopropene, 1-methyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 16 OF 86 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:294094 HCAPLUS

DOCUMENT NUMBER: 136:305522

TITLE: Continuous process for the preparation of encapsulated cyclopropenes

INVENTOR(S): Chong, Joshua Anthony; Farozic, Vincent John; Jacobson, Richard Martin; Snyder, Bret Alan; Stephens, Randall Wayne; Mosley, David Wayne

PATENT ASSIGNEE(S): USA

SOURCE: U.S. Pat. Appl. Publ., 8 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

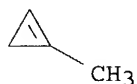
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------|------|---------------------|-----------------|------------|
| US 2002043730 | A1 | 20020418 | US 2001-951049 | 20010912 |
| PRIORITY APPLN. INFO.: | | | US 2000-236657P | P 20000929 |
| OTHER SOURCE(S): | | CASREACT 136:305522 | | |

AB The present invention relates to a continuous method to prepare encapsulated cyclopropenes, a method to purify cyclopropene gas, and a method to prepare an α -cyclodextrin/cyclopropene complex. A method to prepare encapsulated cyclopropenes, comprises the steps of: (a) contacting a first stream comprising an allyl compound $XCH_2C(:CH_2)R$ (X = leaving group; R = H, (un)substituted alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkylalkyl, Ph, or naphthyl) with a second stream comprising a base comprising a non-nucleophilic strong base, optionally comprising a weaker base and an inert solvent, in a first vessel, causing evolution of a cyclopropene as a gas; (b) passing the cyclopropene gas through a condenser held at a temperature less than the b.p. of the allyl compound and greater than the b.p. of the cyclopropene; (c) contacting the cyclopropene gas with a solution of the encapsulation agent in a second vessel to give a precipitate of the encapsulated cyclopropene; (d) separating the precipitate from the solution, (e) optionally washing the

precipitate; and (f) drying the precipitate
 IT 3100-04-7P, 1-Methylcyclopropene
 RL: AGR (Agricultural use); SPN (Synthetic preparation); BIOL
 (Biological study); PREP (Preparation); USES (Uses)
 (preparation of encapsulated)
 RN 3100-04-7 HCAPLUS
 CN Cyclopropene, 1-methyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



IT 2781-85-3DP, Cyclopropene, derivs.
 RL: AGR (Agricultural use); SPN (Synthetic preparation); BIOL
 (Biological study); PREP (Preparation); USES (Uses)
 (preparation of encapsulated cyclopropenes)
 RN 2781-85-3 HCAPLUS
 CN Cyclopropene (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

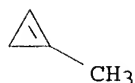


L22 ANSWER 17 OF 86 HCAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 2002:221220 HCAPLUS
 DOCUMENT NUMBER: 136:243292
 TITLE: Antifungal compounds and compositions containing
 substituted cyclopropenes
 INVENTOR(S): Young, David Hamilton
 PATENT ASSIGNEE(S): USA
 SOURCE: U.S. Pat. Appl. Publ., 5 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------------------|------|----------|-----------------|------------|
| US 2002035146 | A1 | 20020321 | US 2001-906975 | 20010717 |
| PRIORITY APPLN. INFO.: | | | US 2000-222682P | P 20000802 |
| OTHER SOURCE(S): MARPAT 136:243292 | | | | |

AB Compds., known to inhibit the response of plants to ethylene, are used for the control of phytopathogenic fungi. The compds. are substituted cyclopropenes I (Markush included), their enantiomers, stereoisomers, and agronomically acceptable salts.

IT 3100-04-7, 1-Methylcyclopropene
 RL: AGR (Agricultural use); BSU (Biological study, unclassified); BIOL (Biological study); USES (Uses)
 (antifungal compns. containing)
 RN 3100-04-7 HCAPLUS
 CN Cyclopropene, 1-methyl- (7CI, 8CI, 9CI) (CA INDEX NAME)

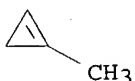


L22 ANSWER 18 OF 86 HCAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 2002:252934 HCAPLUS
 DOCUMENT NUMBER: 136:258728
 TITLE: Pressure agglomerated delivery system for
 cyclopropenes containing cyclodextrin
 INVENTOR(S): Kostansek, Edward Charles
 PATENT ASSIGNEE(S): Rohm and Haas Company, USA
 SOURCE: Eur. Pat. Appl., 8 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|--|----------|-----------------|------------|
| EP 1192859 | A1 | 20020403 | EP 2001-308120 | 20010925 |
| EP 1192859 | B1 | 20030528 | | |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO | | | | |
| US 2002058592 | A1 | 20020516 | US 2001-950967 | 20010912 |
| US 6444619 | B2 | 20020903 | | |
| NZ 514235 | A | 20020726 | NZ 2001-514235 | 20010917 |
| ES 2199917 | T3 | 20040301 | ES 2001-1308120 | 20010925 |
| JP 2002145808 | A2 | 20020522 | JP 2001-296349 | 20010927 |
| BR 2001004287 | A | 20020604 | BR 2001-4287 | 20010927 |
| CN 1349733 | A | 20020522 | CN 2001-141205 | 20010928 |
| PRIORITY APPLN. INFO.: | | | US 2000-236087P | P 20000928 |
| OTHER SOURCE(S): MARPAT 136:258728 | | | | |
| AB | A delivery systems for cyclopropenes I (R = H, (un)substituted alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkylalkyl, Ph, naphthyl) comprises a complex of the cyclopropene and its derivs., such as methylcyclopropene, and a mol. encapsulation agent, such as cyclodextrin, which are capable of inhibiting the ethylene response in plants, wherein the complex is pressure agglomerated. | | | |
| IT | 2781-85-3D, Cyclopropene, derivs. 3100-04-7, 1-Methylcyclopropene RL: AGR (Agricultural use); BIOL (Biological study); USES (Uses) (pressure agglomerated delivery system for cyclopropenes containing cyclodextrin) | | | |
| RN | 2781-85-3 HCAPLUS | | | |
| CN | Cyclopropene (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME) | | | |



RN 3100-04-7 HCAPLUS
 CN Cyclopropene, 1-methyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 19 OF 86 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:252933 HCAPLUS

DOCUMENT NUMBER: 136:258727

TITLE: Delivery systems for cyclopropenes comprising cyclodextrin and superabsorbent polymers requiring less water

INVENTOR(S): Kostansek, Edward Charles

PATENT ASSIGNEE(S): Rohm and Haas Company, USA

SOURCE: Eur. Pat. Appl., 9 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|------|----------|-----------------|------------|
| EP 1192858 | A1 | 20020403 | EP 2001-308119 | 20010925 |
| EP 1192858 | B1 | 20030326 | | |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO | | | | |
| NZ 514236 | A | 20030131 | NZ 2001-514236 | 20010917 |
| US 2002061822 | A1 | 20020523 | US 2001-957752 | 20010921 |
| US 6426319 | B2 | 20020730 | | |
| ES 2194818 | T3 | 20031201 | ES 2001-1308119 | 20010925 |
| BR 2001004286 | A | 20020604 | BR 2001-4286 | 20010927 |
| JP 2002179508 | A2 | 20020626 | JP 2001-296355 | 20010927 |
| CN 1346594 | A | 20020501 | CN 2001-141204 | 20010928 |
| PRIORITY APPLN. INFO.: | | | US 2000-236659P | P 20000929 |

OTHER SOURCE(S): MARPAT 136:258727

AB A new delivery systems for cyclopropenes I (R = H, (un)substituted alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkylalkyl, Ph, naphthyl) comprises the cyclopropene and a mol. encapsulation agent complex, and further comprise addnl. components which provide slow release of the cyclopropene from the mol. encapsulating agent with water, or release of the cyclopropene from the mol. encapsulating agent with only small amts. of water, or both. The compns. are used to deliver a cyclopropene compound to a plant to inhibit an ethylene response in the plant.

IT 2781-85-3D, Cyclopropene, derivs. 3100-04-7, 1-Methylcyclopropene

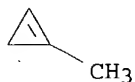
RL: **AGR (Agricultural use)**; BIOL (Biological study); USES (Uses)
(delivery systems requiring less water comprising cyclodextrin and superabsorbent polymers)

RN 2781-85-3 HCAPLUS

CN Cyclopropene (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

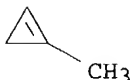


RN 3100-04-7 HCAPLUS
CN Cyclopropene, 1-methyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 20 OF 86 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:206043 HCAPLUS
DOCUMENT NUMBER: 139:5979
TITLE: The role of ethylene in nectarine ripening following
storage
AUTHOR(S): Lurie, S.; Lers, A.; Zhou, H. W.; Dong, L.
CORPORATE SOURCE: Department of Postharvest Science, The Volcani Center,
ARO, Bet Dagan, Israel
SOURCE: Acta Horticulturae (2002), 592 (Vol. 2), 607-613
CODEN: AHORA2; ISSN: 0567-7572
PUBLISHER: International Society for Horticultural Science
DOCUMENT TYPE: Journal
LANGUAGE: English
AB After prolonged storage nectarines and peaches do not ripen and become
soft and juicy, but instead develop a dry, woolly texture. These fruit
produce less ethylene than normally ripening fruit. The disorder can be
alleviated by storing the fruit in the presence of exogenous ethylene, and
can be exacerbated by treatment with the ethylene action inhibitor
1-methylcyclopropene (MCP). Ethylene evolution was not affected by MCP in
non-stored fruits, but was inhibited in fruits following storage.
Ethylene during storage enhanced ethylene production of fruits after storage.
MCP inhibited the expression of 1-aminocyclopropane-1-carboxylic acid
oxidase (ACO) after storage. After storage the message of
polygalacturonase (PG) and pectin esterase (PE) was pos. regulated by
ethylene while endo-glucanase (EGase) was neg. regulated. The data
suggest that a certain level of ethylene production is essential for normal
ripening of nectarines after cold storage.
IT 3100-04-7, 1-Methylcyclopropene
RL: AGR (Agricultural use); BIOL (Biological study); USES (Uses)
(ethylene in nectarine ripening following storage)
RN 3100-04-7 HCAPLUS
CN Cyclopropene, 1-methyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

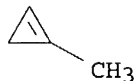
L22 ANSWER 21 OF 86 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2002:628541 HCAPLUS
DOCUMENT NUMBER: 137:228051
TITLE: Effect of 1-methylcyclopropene on the retardation of
senescence in cut flower of Hibiscus syriacus

AUTHOR(S): Son, Ki-Cheol; In, Byung-Chun; Jung, Hee-Jin; Jee, Sun-Ok
 CORPORATE SOURCE: Dept. of Horticultural Science, Konkuk Univ., Seoul, 143-701, S. Korea
 SOURCE: Journal of the Korean Society for Horticultural Science (2002), 43(3), 333-338
 CODEN: JKSHAA
 PUBLISHER: Korean Society for Horticultural Science
 DOCUMENT TYPE: Journal
 LANGUAGE: Korean

AB The effect of 1-methylcyclopropene (1-MCP) on the retardation of senescence in Hibiscus flowers was studied. Cut flowers of Hibiscus (*Hibiscus syriacus* L. cv. Hansarang) were held in the laboratory at 23 + 2°C of temperature, 60 + 5% of relative humidity, and 20 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$ of irradiance, and necessary measurements were taken. According to typical pattern of the flowering and senescence of Hibiscus, the rapidly increasing bud's diameter reached anthesis between 6-12 h after experiment and then petals were enrolled abruptly from 36 h. Correlation between flower diameter and ethylene production showed that ethylene production increased considerably before 6 h at which wilting or enrolling occurred, and ethylene production and wilting were accelerated by petal enrolling. On the contrary, the application of 10 nL·L⁻¹ 1-MCP for 3 h on the flower made the diameter of flower increase constantly up to 36 h with very low level of ethylene production. When Hibiscus flower was treated with various concns. of 1-MCP and durations, it was found that treatment with 10 nL·L⁻¹ 1-MCP for 3 h were most effective on the inhibition of ethylene production and retardation of senescence. In this case, vase life of Hibiscus was extended 140% (53 h) more than that of control. On the other hand, treatment with 10 nL·L⁻¹ 1-MCP for 6 h reduced vase life of Hibiscus. The reduction of vase life was attributed to the damage of plant tissue by the chemical. In the light of application time, ethylene production was extremely inhibited, if 1-MCP was applied to Hibiscus at stage I.

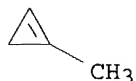
IT 3100-04-7, 1-Methylcyclopropene
 RL: AGR (Agricultural use); BSU (Biological study, unclassified); BIOL (Biological study); USES (Uses)
 (effect of 1-methylcyclopropene on retardation of senescence in cut flower of *Hibiscus syriacus*)

RN 3100-04-7 HCAPLUS
 CN Cyclopropene, 1-methyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



L22 ANSWER 22 OF 86 HCAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 2002:771558 HCAPLUS
 DOCUMENT NUMBER: 138:22201
 TITLE: Effects of ethylene and its action inhibitor (1-methylcyclopropene) for regulating ripening and extending the postharvest life of avocado
 AUTHOR(S): Jeong, Jiwon
 CORPORATE SOURCE: Univ. of Florida, Gainesville, FL, USA
 SOURCE: (2001) 173 pp. Avail.: UMI, Order No. DA3039776
 From: Diss. Abstr. Int., B 2002, 63(1), 121

DOCUMENT TYPE: Dissertation
 LANGUAGE: English
 AB Unavailable
 IT 3100-04-7, (1-Methylcyclopropene)
 RL: AGR (Agricultural use); BSU (Biological study, unclassified); BIOL (Biological study); USES (Uses)
 (Effects of ethylene and its action inhibitor (1-methylcyclopropene) for regulating ripening and extending the postharvest life of avocado)
 RN 3100-04-7 HCAPLUS
 CN Cyclopropene, 1-methyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



L22 ANSWER 23 OF 86 HCAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 2001:452794 HCAPLUS
 DOCUMENT NUMBER: 135:42266
 TITLE: Synthesis methods, complexes and delivery methods for the safe and convenient storage, transport and application of compounds for inhibiting the ethylene response in plants
 INVENTOR(S): Daly, James; Kourelis, Bob
 PATENT ASSIGNEE(S): Biotechnologies for Horticulture, Inc., USA
 SOURCE: PCT Int. Appl., 68 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|------|----------|-----------------|------------|
| WO 2001043548 | A1 | 20010621 | WO 1999-US27941 | 19991217 |
| W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG | | | | |
| EP 1237411 | A1 | 20020911 | EP 1999-965034 | 19991217 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL | | | | |
| BR 9917586 | A | 20021029 | BR 1999-17586 | 19991217 |
| JP 2003516944 | T2 | 20030520 | JP 2001-544497 | 19991217 |
| PRIORITY APPLN. INFO.: | | | WO 1999-US27941 | W 19991217 |
| OTHER SOURCE(S): MARPAT 135:42266 | | | | |

AB The invention relates to inhibition of ethylene response in plants or plant products, and has three embodiments. The first embodiment relates to methods of minimizing impurities capable of reversibly binding to plant ethylene receptor sites during the synthesis of cyclopropene and its derivs., such as methylcyclopropene, thereby avoiding the neg. effects these impurities have on plants treated with cyclopropene and its derivs.

Pure cyclopropene and its derivs. are prepared by reacting, in an inert environment, a metal amide with the corresponding halopropene derivative. The second embodiment relates to complexes formed from mol. encapsulation agents, such as cyclodextrin, with cyclopropene and its derivs. such as methylcyclopropene, in addition to cyclopentadiene and diazocyclopentadiene and their derivs., thereby providing a convenient means for storing and transporting these compds. capable of inhibiting the ethylene response in plants, which are reactive gases and highly unstable because of oxidation and other potential reactions. The third embodiment relates to convenient methods of delivering to plants these compds. capable of inhibiting the ethylene response in the plants in order to extend their shelf life.

IT 29663-07-8P, Methylcyclopropene

RL: AGR (Agricultural use); BUU (Biological use, unclassified);

SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); USES (Uses)

(preparation in pure form, complexation, and use as ethylene formation inhibitor in plants)

RN 29663-07-8 HCAPLUS

CN Cyclopropene, methyl- (9CI) (CA INDEX NAME)



D1-Me

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 24 OF 86 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2001:396606 HCAPLUS

DOCUMENT NUMBER: 135:1672

TITLE: Preparation of cyclopropene derivatives as agents for blocking ethylene response in plants

INVENTOR(S): Sisler, Edward C.

PATENT ASSIGNEE(S): North Carolina State University, USA

SOURCE: PCT Int. Appl., 59 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 3

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---------------|--|----------|-----------------|----------|
| WO 2001037663 | A2 | 20010531 | WO 2000-US31944 | 20001122 |
| WO 2001037663 | A3 | 20020117 | | |
| W: | AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | |
| RW: | GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG | | | |

| | | | | |
|---|----|----------|-----------------|------------|
| US 6194350 | B1 | 20010227 | US 1999-448523 | 19991123 |
| BR 2000015750 | A | 20020716 | BR 2000-15750 | 20001122 |
| EP 1233669 | A2 | 20020828 | EP 2000-980608 | 20001122 |
| EP 1233669 | B1 | 20040225 | | |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR | | | | |
| JP 2003533972 | T2 | 20031118 | JP 2001-539292 | 20001122 |
| NZ 519036 | A | 20040227 | NZ 2000-519036 | 20001122 |
| AT 260031 | E | 20040315 | AT 2000-980608 | 20001122 |
| PRIORITY APPLN. INFO.: | | | US 1999-448523 | A 19991123 |
| | | | US 2000-193202P | P 20000330 |
| | | | WO 2000-US31944 | W 20001122 |

OTHER SOURCE(S): MARPAT 135:1672

AB The cyclopropene derivs. I [R = (un)substituted alkyl, alkenyl or alkynyl; n = 1-4] are prepared as blocking agents of ethylene receptors in plants. I inhibit abscission in plants, inhibiting the ripening of picked fruits and picked vegetables, and prolong the vase life of cut flowers.

IT 50915-82-7P 50915-83-8P, 1-Octylcyclopropene
341996-24-5P 341996-32-5P 341996-40-5P
341996-42-7P 341996-49-4P

RL: AGR (Agricultural use); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); USES (Uses)
(preparation as agent for blocking ethylene response in plants)

RN 50915-82-7 HCAPLUS

CN Cyclopropene, 1-hexyl- (9CI) (CA INDEX NAME)

(CH₂)₅-Me

RN 50915-83-8 HCAPLUS

CN Cyclopropene, 1-octyl- (9CI) (CA INDEX NAME)

(CH₂)₇-Me

RN 341996-24-5 HCAPLUS

CN Cyclopropene, 1-(7-methoxyheptyl)- (9CI) (CA INDEX NAME)

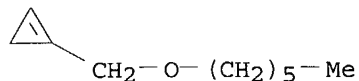
(CH₂)₇-OMe

RN 341996-32-5 HCAPLUS

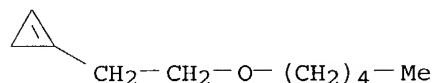
CN 1-Cyclopropene-1-heptanoic acid, ethyl ester (9CI) (CA INDEX NAME)

(CH₂)₆-C(=O)-OEt

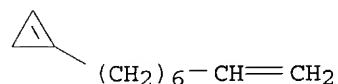
RN 341996-40-5 HCAPLUS
 CN Cyclopropene, 1-[(hexyloxy)methyl]- (9CI) (CA INDEX NAME)



RN 341996-42-7 HCAPLUS
 CN Cyclopropene, 1-[2-(pentyloxy)ethyl]- (9CI) (CA INDEX NAME)



RN 341996-49-4 HCAPLUS
 CN Cyclopropene, 1-(7-octenyl)- (9CI) (CA INDEX NAME)



L22 ANSWER 25 OF 86 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2001:658069 HCAPLUS

DOCUMENT NUMBER: 135:222847

TITLE: Methods of blocking an ethylene response in plants using cyclopropene derivatives

INVENTOR(S): Sisler, Edward C.

PATENT ASSIGNEE(S): USA

SOURCE: U.S. Pat. Appl. Publ., 18 pp., Cont.-in-part of U.S. 6,194,350.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 3

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------|------|----------|-----------------|-------------|
| US 2001019995 | A1 | 20010906 | US 2001-789142 | 20010220 |
| US 6365549 | B2 | 20020402 | | |
| US 6194350 | B1 | 20010227 | US 1999-448523 | 19991123 |
| PRIORITY APPLN. INFO.: | | | US 1999-448523 | A2 19991123 |
| | | | US 2000-193202P | P 20000330 |

OTHER SOURCE(S): MARPAT 135:222847

AB Cyclopropene derivs. I (n = 1-4; each R independently = (un)saturated, (un)branched, (un)substituted C5-C20 alkyl, alkenyl, or alkynyl, wherein at least one R = (un)saturated, (un)branched, (un)substituted C5 alkyl, alkenyl, or alkynyl) and compns. thereof are used to block ethylene receptors in plants and to inhibit plant ethylene response, such as ripening of harvested fruits and vegetables, cut flower senescence, and plant abscission.

IT 50915-82-7P, 1-Hexylcyclopropene 50915-83-8P,

1-Octylcyclopropene 50915-84-9P 303021-66-1P

341996-24-5P 341996-25-6P 341996-32-5P

341996-40-5P 341996-42-7P 341996-49-4P

341996-58-5P 341996-59-6P 341996-60-9P

341996-61-0P 341996-62-1P 341996-64-3P

341996-65-4P 341996-67-6P 341996-68-7P

341996-69-8P 341996-70-1P 341996-73-4P

341996-74-5P

RL: AGR (Agricultural use); BUU (Biological use, unclassified);

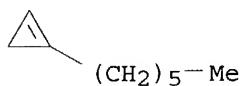
PRP (Properties); SPN (Synthetic preparation); BIOL (Biological study);

PREP (Preparation); USES (Uses)

(preparation of cyclopropene derivs. as agents for blocking ethylene response in plants)

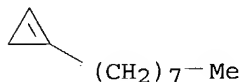
RN 50915-82-7 HCAPLUS

CN Cyclopropene, 1-hexyl- (9CI) (CA INDEX NAME)



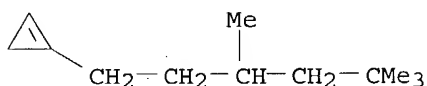
RN 50915-83-8 HCAPLUS

CN Cyclopropene, 1-octyl- (9CI) (CA INDEX NAME)



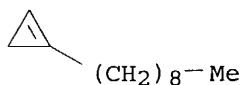
RN 50915-84-9 HCAPLUS

CN Cyclopropene, 1-(3,5,5-trimethylhexyl)- (9CI) (CA INDEX NAME)



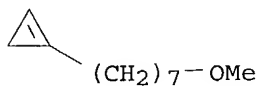
RN 303021-66-1 HCAPLUS

CN Cyclopropene, 1-nonyl- (9CI) (CA INDEX NAME)



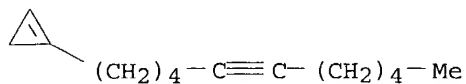
RN 341996-24-5 HCAPLUS

CN Cyclopropene, 1-(7-methoxyheptyl)- (9CI) (CA INDEX NAME)



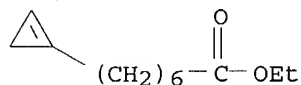
RN 341996-25-6 HCAPLUS

CN Cyclopropene, 1-(5-undecynyl)- (9CI) (CA INDEX NAME)



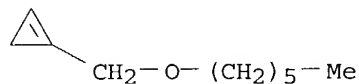
RN 341996-32-5 HCAPLUS

CN 1-Cyclopropene-1-heptanoic acid, ethyl ester (9CI) (CA INDEX NAME)



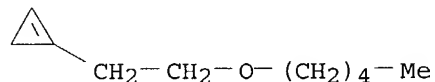
RN 341996-40-5 HCAPLUS

CN Cyclopropene, 1-[(hexyloxy)methyl]- (9CI) (CA INDEX NAME)



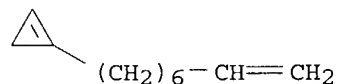
RN 341996-42-7 HCAPLUS

CN Cyclopropene, 1-[2-(pentyloxy)ethyl]- (9CI) (CA INDEX NAME)



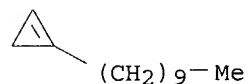
RN 341996-49-4 HCAPLUS

CN Cyclopropene, 1-(7-octenyl)- (9CI) (CA INDEX NAME)



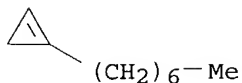
RN 341996-58-5 HCAPLUS

CN Cyclopropene, 1-decyl- (9CI) (CA INDEX NAME)

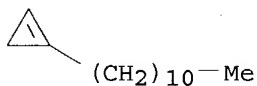


RN 341996-59-6 HCAPLUS

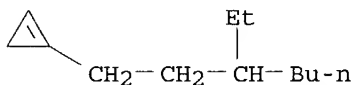
CN Cyclopropene, 1-heptyl- (9CI) (CA INDEX NAME)



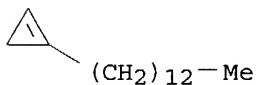
RN 341996-60-9 HCAPLUS
 CN Cyclopropene, 1-undecyl- (9CI) (CA INDEX NAME)



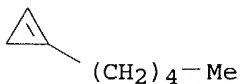
RN 341996-61-0 HCAPLUS
 CN Cyclopropene, 1-(3-ethylheptyl)- (9CI) (CA INDEX NAME)



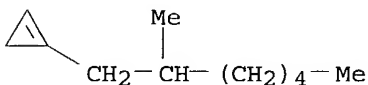
RN 341996-62-1 HCAPLUS
 CN Cyclopropene, 1-tridecyl- (9CI) (CA INDEX NAME)



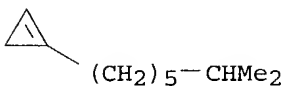
RN 341996-64-3 HCAPLUS
 CN Cyclopropene, 1-pentyl- (9CI) (CA INDEX NAME)



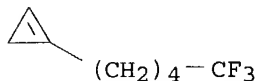
RN 341996-65-4 HCAPLUS
 CN Cyclopropene, 1-(2-methylheptyl)- (9CI) (CA INDEX NAME)



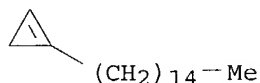
RN 341996-67-6 HCAPLUS
 CN Cyclopropene, 1-(6-methylheptyl)- (9CI) (CA INDEX NAME)



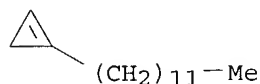
RN 341996-68-7 HCAPLUS
CN Cyclopropene, 1-(5,5,5-trifluoropentyl)- (9CI) (CA INDEX NAME)



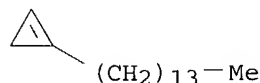
RN 341996-69-8 HCAPLUS
CN Cyclopropene, 1-pentadecyl- (9CI) (CA INDEX NAME)



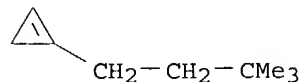
RN 341996-70-1 HCAPLUS
CN Cyclopropene, 1-dodecyl- (9CI) (CA INDEX NAME)



RN 341996-73-4 HCAPLUS
CN Cyclopropene, 1-tetradecyl- (9CI) (CA INDEX NAME)



RN 341996-74-5 HCAPLUS
CN Cyclopropene, 1-(3,3-dimethylbutyl)- (9CI) (CA INDEX NAME)



IT 2781-85-3DP, Cyclopropene, derivs.
RL: AGR (Agricultural use); BUU (Biological use, unclassified);
PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); BIOL
(Biological study); PREP (Preparation); RACT (Reactant or reagent); USES
(Uses)
(reactant in preparation of cyclopropene derivs. as agents for blocking
ethylene response in plants)
RN 2781-85-3 HCAPLUS
CN Cyclopropene (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



L22 ANSWER 26 OF 86 HCAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 2001:810327 HCAPLUS
 DOCUMENT NUMBER: 135:354173
 TITLE: Synthesis methods, complexes and delivery methods for
 the safe and convenient storage, transport and
 application of compounds for inhibiting the ethylene
 response in plants
 INVENTOR(S): Daly, James; Kourelis, Bob
 PATENT ASSIGNEE(S): Agrofresh, Inc., USA
 SOURCE: U.S., 12 pp., Cont.-in-part of U.S. 6,017,849.
 CODEN: USXXAM
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------|------|----------|-----------------|-------------|
| US 6313068 | B1 | 20011106 | US 1999-367654 | 19990820 |
| US 6017849 | A | 20000125 | US 1998-137056 | 19980820 |
| US 2004082480 | A1 | 20040429 | US 2001-957942 | 20010921 |
| PRIORITY APPLN. INFO.: | | | US 1998-137056 | A2 19980820 |
| | | | US 1999-367654 | A3 19990820 |

OTHER SOURCE(S): MARPAT 135:354173

AB The present invention generally relates to the regulation of plant
 physiol., in particular to methods for inhibiting the ethylene response in
 plants or plant products, and has three embodiments. The first embodiment
 relates to methods of minimizing impurities capable of reversibly binding
 to plant ethylene receptor sites during the synthesis of cyclopropene and
 its derivs. such as methylcyclopropene, thereby avoiding the neg. effects
 these impurities have on plants treated with cyclopropene and its derivs.
 The second embodiment relates to complexes formed from mol. encapsulation
 agents such as cyclodextrin, and cyclopropene and its derivs. such as
 methylcyclopropene, in addition to cyclopentadiene and diazocyclopentadiene
 and their derivs., thereby providing a convenient means for storing and
 transporting these compds. capable of inhibiting the ethylene response in
 plants, which are reactive gases and highly unstable because of oxidation and
 other potential reactions. The third embodiment relates to convenient
 methods of delivering to plants these compds. capable of inhibiting the
 ethylene response in the plants in order to extend their shelf life.

IT 2781-85-3, Cyclopropene

RL: AGR (Agricultural use); BAC (Biological activity or
 effector, except adverse); BSU (Biological study, unclassified); BIOL
 (Biological study); USES (Uses)
 (synthesis methods, complexes and delivery methods for the safe and
 convenient storage, transport and application of compds. for inhibiting
 the ethylene response in plants)

RN 2781-85-3 HCAPLUS

CN Cyclopropene (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IT 29663-07-8P, Methylcyclopropene

RL: AGR (Agricultural use); BAC (Biological activity or
 effector, except adverse); BSU (Biological study, unclassified); PUR

(Purification or recovery); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (synthesis methods, complexes and delivery methods for the safe and convenient storage, transport and application of compds. for inhibiting the ethylene response in plants)

RN 29663-07-8 HCAPLUS
 CN Cyclopropene, methyl- (9CI) (CA INDEX NAME)



D1-Me

REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 27 OF 86 HCAPLUS COPYRIGHT 2004 ACS on STN

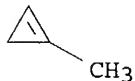
ACCESSION NUMBER: 2001:479710 HCAPLUS
 DOCUMENT NUMBER: 135:60509
 TITLE: Plant freshness retention agent.
 INVENTOR(S): Suzuki, Tadayuki; Kamei, Masatoshi
 PATENT ASSIGNEE(S): Kao Corp., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------|------|----------|-----------------|----------|
| JP 2001181104 | A2 | 20010703 | JP 1999-366654 | 19991224 |
| PRIORITY APPLN. INFO.: | | | JP 1999-366654 | 19991224 |

AB The title agent (I) is prepared from carbohydrate selected from monosaccharide, disaccharide, and oligosaccharide; ethylene biosynthesis-inhibiting agent; colloid particle-flocculating agent; and surfactant. I is highly effective and does not give environmental pollution.

IT 3100-04-7, 1-Methylcyclopropene
 RL: AGR (Agricultural use); BIOL (Biological study); USES (Uses)
 (plant freshness retention agent)

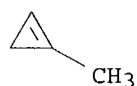
RN 3100-04-7 HCAPLUS
 CN Cyclopropene, 1-methyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



L22 ANSWER 28 OF 86 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:74064 HCAPLUS
 DOCUMENT NUMBER: 136:243249
 TITLE: Role of ethylene and 1-MCP in flower development and

petal abscission in zonal geraniums
 AUTHOR(S): Jones, Michelle L.; Kim, Eun-Sun; Newman, Steven E.
 CORPORATE SOURCE: Department of Horticulture and Landscape Architecture,
 Colorado State University, Fort Collins, CO, 80523,
 USA
 SOURCE: HortScience (2001), 36(7), 1305-1309
 CODEN: HJHSAR; ISSN: 0018-5345
 PUBLISHER: American Society for Horticultural Science
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB Geraniums are sensitive to ethylene during shipping and respond by
 abscising their petals. Treatment of stock plants with ethylene
 (ethephon) in order to increase cutting yield resulted in earlier
 flowering in Pelargonium + hortorum "Kim" and "Veronica", but did
 not result in increased susceptibility to petal abscission following
 exposure to 1.0 $\mu\text{L}\cdot\text{L}^{-1}$ ethylene. Treatment of "Kim",
 "Veronica", "Fox", and "Cotton Candy" with 1.0 $\mu\text{L}\cdot\text{L}^{-1}$ ethylene
 resulted in increased petal abscission within one hour, with "Fox" being
 the most sensitive and "Kim" the least. Pretreatment of florets with
 1-MCP for 3, 6, 12, or 24 h at concns. of 0.1 or 1.0 $\mu\text{L}\cdot\text{L}^{-1}$
 decreased petal abscission in all cultivars following exposure to 1.0
 $\mu\text{L}\cdot\text{L}^{-1}$ ethylene. Treatment with 0.1 $\mu\text{L}\cdot\text{L}^{-1}$ 1-MCP for
 1 h reduced petal abscission rates in ethylene treated florets to that of
 non-ethylene treated controls in all cultivars except Fox. "Fox" florets,
 which are more sensitive to ethylene, required 12 to 24 h of exposure to
 1-MCP to reduce petal abscission rates to that of control flowers.
 Pretreatment of geranium plants with 1-MCP can be used to reduce petal
 shattering during shipping.
 IT 3100-04-7, 1-Methylcyclopropene
 RL: AGR (Agricultural use); BSU (Biological study,
 unclassified); BIOL (Biological study); USES (Uses)
 (effect on flower development and petal abscission in zonal geraniums)
 RN 3100-04-7 HCAPLUS
 CN Cyclopropene, 1-methyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 29 OF 86 HCAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 2001:408169 HCAPLUS
 DOCUMENT NUMBER: 135:45395
 TITLE: Delay of fruit softening in forcing-cultured
 'Tonewase' Japanese persimmon by packaging in
 perforated polyethylene bags
 AUTHOR(S): Nakano, Ryohei; Harima, Shinji; Kubo, Yasutaka; Inaba,
 Akitsugu
 CORPORATE SOURCE: Fac. Agric., Okayama Univ., Tsushima, Okayama,
 700-8530, Japan
 SOURCE: Journal of the Japanese Society for Horticultural
 Science (2001), 70(3), 385-392
 CODEN: EGKZA9; ISSN: 0013-7626
 PUBLISHER: Engei Gakkai
 DOCUMENT TYPE: Journal

LANGUAGE: Japanese

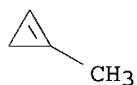
AB 'Tonewase' is an early maturity strain selected from 'Hiratanenashi', an astringent Japanese persimmon cultivar. In some districts of Japan, 'Tonewase' has been grown under forcing-culture conditions, which often results in rapid softening during postharvest distribution. We elucidated that this softening is caused by water-stress-induced ethylene that can be suppressed by reducing water loss by using perforated polyethylene bags (PPB). With or without removal of astringency by treatment with elevated carbon dioxide (CTSD method), forcing-cultured 'Tonewase' fruit produced significant amts. of ethylene two days after harvest; thereafter, most fruit softened rapidly. This softening was markedly suppressed by treating the fruit with 1-methylcyclopropene (MCP), an inhibitor of ethylene action, which suggests the involvement of ethylene in fruit softening. Packaging 'Tonewase' fruit in PPB ranging from 0.03% to 0.3% of the total film surface area reduced water loss, retarded the commencement of ethylene formation and delayed fruit softening. Immature field-grown 'Hiratanenashi' fruit behaved similarly to the forcing-cultured 'Tonewase' fruit with respect to ethylene formation, softening and response to MCP treatment and PPB, whereas mature fruit under the same storage conditions produced no ethylene and remained firm during postharvest.

IT 3100-04-7, 1-Methylcyclopropene

RL: AGR (Agricultural use); BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); FFD (Food or feed use); BIOL (Biological study); USES (Uses)
(delay of fruit softening in forcing-cultured Japanese persimmon by packaging in perforated polyethylene bag)

RN 3100-04-7 HCAPLUS

CN Cyclopropene, 1-methyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



L22 ANSWER 30 OF 86 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2001:770220 HCAPLUS

DOCUMENT NUMBER: 136:291643

TITLE: Application of new inhibitor of ethylene perception,
1- methylcyclopropene in postharvest horticultural
crop

AUTHOR(S): Su, Xiaojun; Jiang, Yueming

CORPORATE SOURCE: South China Institute of Botany, Chinese Academy of
Sciences, Canton, 510650, Peop. Rep. China

SOURCE: Zhiwu Shenglixue Tongxun (2001), 37(4), 361-364

CODEN: CHWSAX; ISSN: 0412-0922

PUBLISHER: Kexue Chubanshe

DOCUMENT TYPE: Journal; General Review

LANGUAGE: Chinese

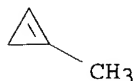
AB A review on the application of new inhibitor of ethylene perception,
1-methylcyclopropene (1-MCP) in postharvest horticultural crop including
properties, role mechanism, affecting factors of 1-MCP, effect of 1-MCP on
ethylene production, respiration, color changes, etc.

IT 3100-04-7, 1-Methylcyclopropene

RL: AGR (Agricultural use); BSU (Biological study,
unclassified); BIOL (Biological study); USES (Uses)

(application of new inhibitor of ethylene perception, 1-

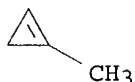
methcyclopropene in postharvest horticultural crop)
RN 3100-04-7 HCAPLUS
CN Cyclopropene, 1-methyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



L22 ANSWER 31 OF 86 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2001:743508 HCAPLUS
DOCUMENT NUMBER: 135:354136
TITLE: The effect of chemical structure on the antagonism by
cyclopropenes of ethylene responses in banana
AUTHOR(S): Sisler, Edward C.; Serek, Margrethe; Roh, Kee-An;
Goren, Raphael
CORPORATE SOURCE: Department of Biochemistry, North Carolina State
University, Raleigh, NC, 27695, USA
SOURCE: Plant Growth Regulation (2001), 33(2), 107-110
CODEN: PGRED3; ISSN: 0167-6903
PUBLISHER: Kluwer Academic Publishers
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Cyclopropene, 1-methylcyclopropene, 3-methylcyclopropene,
1,3-dimethylcyclopropene, 3,3-dimethylcyclopropene, 1,3,3-
trimethylcyclopropene, 3-methyl-3-vinylcyclopropene, 3-methyl-3-
ethynylcyclopropene, and 1,2-dimethylcyclopropene were tested as
antagonists to the ethylene receptor in bananas. All of the compds.
inactivated the receptor and the bananas did not respond to ethylene even
at 1000 nL L-1. Large differences were found in the concentration required
(0.7-20,000 nL L-1 for 24h) to inactivate the receptor and in the duration
of inactivation (3-12 days at 24°C depending on the compound). After
this time, the bananas responded to ethylene and appeared to ripen
normally.
IT 2781-85-3D, Cyclopropene, derivs. 3100-04-7,
1-Methylcyclopropene
RL: AGR (Agricultural use); BAC (Biological activity or
effector, except adverse); BSU (Biological study, unclassified); BIOL
(Biological study); USES (Uses)
(inactivation of ethylene receptor in banana by cyclopropene derivs.)
RN 2781-85-3 HCAPLUS
CN Cyclopropene (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 3100-04-7 HCAPLUS
CN Cyclopropene, 1-methyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 32 OF 86 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2001:293505 HCAPLUS

DOCUMENT NUMBER: 134:337106

TITLE: A survey of ethylene contamination in Ontario's floriculture industry and the evaluation of 1-methylcyclopropene and an ethylene absorber as potential solutions

AUTHOR(S): Skog, Lisa J.; Blom, Theo; Schaefer, Brad; Digweed, Brad; Fraser, Hugh; Brown, Wayne

CORPORATE SOURCE: Department of Plant Agriculture, University of Guelph, Vineland Station, ON, L0R 2E0, Can.

SOURCE: Acta Horticulturae (2001), 543 (Proceedings of the Seventh International Symposium on Postharvest Physiology of Ornamental Plants, 1999), 55-62
CODEN: AHORA2; ISSN: 0567-7572

PUBLISHER: International Society for Horticultural Science

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Over 1700 air samples were taken from 20 locations throughout the floral distribution chain. Approx. 63% of the samples had detectable levels of ethylene ($>0.01 \mu\text{L/L}$). The highest levels ($13.0 \mu\text{L/L}$) were detected at wholesalers and distributors. Moderate levels ($0.1\text{--}2.0 \mu\text{L/L}$) were detected in greenhouse packing facilities. Levels were lowest ($<0.2 \mu\text{L/L}$) at florists. Twenty-one plant species were evaluated for response to the ethylene binding inhibitor EthylBloc (active ingredient: 1-methylcyclopropene or 1-MCP) and the ethylene absorber ExtendaFresh. With the exception of the poinsettia 'Freedom' and Easter lily 'Nellie White', the quality of all plants treated with the 1-MCP (0.5 g/m^3 EthylBloc for 6 h at $20 \pm 1^\circ\text{C}$) prior to subsequent exposure to ethylene ($2\text{--}10 \mu\text{L/L}$ depending upon species) was at least equal to the control without ethylene exposure. For nine of the species, the plants treated with 1-MCP in the absence of external ethylene were also superior to the controls without ethylene. When EthylBloc was applied to selected species at temps. $<13^\circ\text{C}$, the min. effective concentration and duration of MCP exposure varied with species. ExtendaFresh at a low concentration (70 g/m^3)

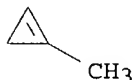
was not as effective at preventing damage from external ethylene, but in most cases the plants recovered from the ethylene damage more quickly than the controls. At higher concns. (90 or 120 g/m^3), the ethylene absorber improved the condition of both pot roses and snapdragons stored in the presence of ethylene but results were not always equal to the plants without ethylene.

IT 3100-04-7, 1-Methylcyclopropene

RL: AGR (Agricultural use); BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses) (reduction of ethylene damage in floriculture with)

RN 3100-04-7 HCAPLUS

CN Cyclopropene, 1-methyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 33 OF 86 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2000:67480 HCAPLUS
DOCUMENT NUMBER: 132:89492
TITLE: Preparation and complexation of cyclopropene
derivatives as inhibiting agents the ethylene response
in plants
INVENTOR(S): Daly, James; Kourelis, Bob
PATENT ASSIGNEE(S): Biotechnologies for Horticulture, Inc., USA
SOURCE: U.S., 12 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|------|----------|-------------------|-------------|
| US 6017849 | A | 20000125 | US 1998-137056 | 19980820 |
| CA 2341301 | AA | 20000302 | CA 1999-2341301 | 19990630 |
| WO 2000010386 | A1 | 20000302 | WO 1999-US14891 | 19990630 |
| W: | | | | |
| AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, | | | | |
| DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, | | | | |
| JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, | | | | |
| MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, | | | | |
| TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, | | | | |
| RU, TJ, TM | | | | |
| RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, | | | | |
| ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, | | | | |
| CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG | | | | |
| AU 9948509 | A1 | 20000314 | AU 1999-48509 | 19990630 |
| AU 768290 | B2 | 20031204 | | |
| EP 1139736 | A1 | 20011010 | EP 1999-932135 | 19990630 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, | | | | |
| IE, SI, FI, RO | | | | |
| TR 200100802 | T2 | 20011121 | TR 2001-200100802 | 19990630 |
| BR 9913161 | A | 20011204 | BR 1999-13161 | 19990630 |
| JP 2002523337 | T2 | 20020730 | JP 2000-565720 | 19990630 |
| NZ 510026 | A | 20030926 | NZ 1999-510026 | 19990630 |
| US 6313068 | B1 | 20011106 | US 1999-367654 | 19990820 |
| NO 2001000840 | A | 20010419 | NO 2001-840 | 20010219 |
| HR 2001000121 | A1 | 20020228 | HR 2001-121 | 20010219 |
| ZA 2001001411 | A | 20010821 | ZA 2001-1411 | 20010220 |
| BG 105308 | A | 20020430 | BG 2001-105308 | 20010305 |
| US 2004082480 | A1 | 20040429 | US 2001-957942 | 20010921 |
| PRIORITY APPLN. INFO.: | | | US 1998-137056 | A 19980820 |
| | | | WO 1999-US14891 | W 19990630 |
| | | | US 1999-367654 | A3 19990820 |

AB The invention relates to the regulation of plant physiol., in particular to methods for inhibiting the ethylene response in plants or plant products, and has 3 embodiments. The first embodiment relates to methods of minimizing impurities capable of reversibly binding to plant ethylene receptor sites during the synthesis of cyclopropene and its derivs. such as methylcyclopropene, thereby avoiding the neg. effects these impurities have on plants treated with cyclopropene and its derivs. The second embodiment relates to complexes formed from mol. encapsulation agents such as cyclodextrin, and cyclopropene and its derivs., such as

methylcyclopropene, in addition to cyclopentadiene and diazocyclopentadiene and their derivs., thereby providing a convenient means for storing and transporting these compds. capable of inhibiting the ethylene response in plants, which are reactive gases and highly unstable because of oxidation and other potential reactions. The third embodiment relates to convenient methods of delivering to plants these compds. capable of inhibiting the ethylene response in the plant and plant products in order to extend their shelf life. The invention uses a complex formed from a mol. encapsulation agent and (un)substituted cyclopropene. The mol. encapsulation agent is cyclodextrin, a crown ether, a polyalkylene, a polysiloxane, or zeolite.

IT 2781-85-3D, Cyclopropene, complexes 255062-91-0D, complexes
RL: AGR (Agricultural use); FFD (Food or feed use); BIOL (Biological study); USES (Uses)
(agents to inhibit ethylene responses in plants and plant products)
RN 2781-85-3 HCAPLUS
CN Cyclopropene (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 255062-91-0 HCAPLUS
CN Cyclopropene, dimethyl- (9CI) (CA INDEX NAME)



2 (D1-Me)

IT 29663-07-8P, Methylcyclopropene
RL: AGR (Agricultural use); FFD (Food or feed use); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); USES (Uses)
(preparation and complexation as agent to inhibit ethylene responses in plants and plant products)
RN 29663-07-8 HCAPLUS
CN Cyclopropene, methyl- (9CI) (CA INDEX NAME)

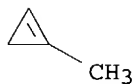


D1-Me

REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 34 OF 86 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2001:567163 HCAPLUS
DOCUMENT NUMBER: 136:182794

TITLE: Pre-harvest fruit drop, harvest quality, and cold storage of "Golden Delicious" and "Rome" apples
AUTHOR(S): Byers, R. E.; Carbaugh, D. H.; Combs, L. D.
CORPORATE SOURCE: Alson H. Smith, Jr. Agricultural Research and Extension Center, Virginia Polytechnic Institute and State University, Winchester, VA, 22602, USA
SOURCE: Proceedings - Plant Growth Regulation Society of America (2000), 27th, 175-180
CODEN: PPGRDG; ISSN: 0731-1664
PUBLISHER: Plant Growth Regulation Society of America
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Several expts. were conducted to investigate aminoethoxyvinylglycine (ReTain), NAA, and their combinations for pre-harvest fruit drop control, fruit quality, and cold storage of harvested fruit and 1-methylcyclopropene (MCP) for pre-harvest fruit drop control and on tree fruit quality. Trees were selected for uniformity and were blocked according to row and terrain into six blocks for the different treatments. In the first experiment, application of NAA or ReTain on Golden delicious provided acceptable control of fruit drop, with better results for ReTain. The combination of NAA and ReTain did not cause a reduction of fruit firmness when compared to ReTain alone. In the second experiment, neither EthylBloc or NAA inhibited fruit drop of Golden Delicious fruit. All Ethephon spray treatments caused more rapid and extensive fruit drop than the control. The fruit maintained its firmness with EthylBloc gas, and to a lesser extent with EthylBloc sprays. In the last experiment, NAA plus Silwet L-77 inhibited fruit drop of Law Rome, but none of the EthylBloc sprays inhibited fruit drop when applied at harvest. Previous data with ReTain and NAA indicated that late applications are frequently much less effective than if applied 4 wk before harvest. EthylBloc sprays maintained fruit firmness.
IT 3100-04-7, EthylBloc
RL: AGR (Agricultural use); FFD (Food or feed use); BIOL (Biological study); USES (Uses)
(1-methylcyclopropene; pre-harvest fruit drop, harvest quality, and cold storage of Golden Delicious and Rome apples)
RN 3100-04-7 HCAPLUS
CN Cyclopropene, 1-methyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 35 OF 86 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2000:44803 HCAPLUS

DOCUMENT NUMBER: 132:162332

TITLE: Effect of Ethylbloc on postharvest performance and ethylene production of cut racemes of Big Bend bluebonnet

AUTHOR(S): Sankhla, N.; Mackay, W. A.; Davis, T. D.

CORPORATE SOURCE: Res. & Ext. Ctr., Texas A&M Univ., Dallas, TX, 75252-6599, USA

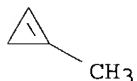
SOURCE: Proceedings - Plant Growth Regulation Society of America (1999), 26th, 190-192

CODEN: PPGRDG; ISSN: 0731-1664
 PUBLISHER: Plant Growth Regulation Society of America
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB Ethylbloc releases 1-methylcyclopropene (1-MCP), a newly introduced effective gaseous inhibitor of ethylene responses, which renders cut flowers and potted plants insensitive to ethylene. Our studies indicated that treatment with 1-MCP prevented flower abscission, reduced flower senescence and induced addnl. flowers to open in cut racemes of Big Bend bluebonnet (*Lupinus havardii* Wats.) resulting in extended vase life. 1-MCP also greatly prevented the abscission of flowers caused by treatment with 2-chloroethylphosphonic acid (CEPA, Florel). Following treatment with extremely low concns. of 1-MCP the 'blue-flowered' racemes again became sensitive to ethylene after 5 days, while in 'white-flowered' racemes even the lowest concentration used was sufficient to afford protection against ethylene. Addnl., the magnitude of ethylene production in flowers and the raceme axis, alone and in combination with CEPA, was also considerably reduced by 1-MCP. 1-MCP is highly effective in protecting cut racemes of Big Bend bluebonnet against ethylene and thereby enhances display life.

IT 3100-04-7, 1-Methylcyclopropene
 RL: AGR (Agricultural use); BIOL (Biological study); USES (Uses)
 (1-methylcyclopropene protects cut racemes of *Lupinus havardii* against ethylene and enhances vase life)

RN 3100-04-7 HCAPLUS
 CN Cyclopropene, 1-methyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 36 OF 86 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1999:440845 HCAPLUS

DOCUMENT NUMBER: 131:69650

TITLE: Inhibition of ethylene responses by 1-methylcyclopropene and 3-methylcyclopropene

AUTHOR(S): Sisler, Edward C.; Serek, Margrethe; Dupille, Eve; Goren, Raphael

CORPORATE SOURCE: Department of Biochemistry, North Carolina State University, Raleigh, NC, 27695, USA

SOURCE: Plant Growth Regulation (1999), 27(2), 105-111
 CODEN: PGRED3; ISSN: 0167-6903

PUBLISHER: Kluwer Academic Publishers

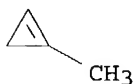
DOCUMENT TYPE: Journal

LANGUAGE: English

AB 3-Methylcyclopropene (3-MCP) binds to the ethylene receptor and blocks it for several days, but concns. wise is less effective than 1-methylcyclopropene (1-MCP). In diverse ethylene-responsive systems, including ripening of mature-green bananas (*Musa sapientum* L.), inhibition of growth in etiolated pea (*Pisum sativum* L.) seedlings, abscission of orange (*Citrus sinensis* L.) leaf explants and mung bean (*Vigna radiata* L.) leaves, and wilting of campanula (*Campanula carpatica*) and kalanchoe (*Kalanchoe blossfeldiana*) florets, full inhibition of the ethylene response required higher concns. of 3-MCP. Depending on the exptl. system, the effective concentration of 3-MCP was from 5 to 10 times higher than

that required for 1-MCP.

IT 3100-04-7, 1-Methylcyclopropene
RL: **AGR (Agricultural use)**; BAC (Biological activity or
effector, except adverse); BSU (Biological study, unclassified); BIOL
(Biological study); USES (Uses)
(inhibition of ethylene responses by 1-methylcyclopropene and
3-methylcyclopropene)
RN 3100-04-7 HCAPLUS
CN Cyclopropene, 1-methyl- (7CI, 8CI, 9CI) (CA INDEX NAME)

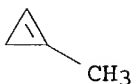


REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 37 OF 86 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1999:58129 HCAPLUS
DOCUMENT NUMBER: 130:206228
TITLE: 1-Methylcyclopropene extends Cymbidium orchid vase
life and prevents damaged pollinia from accelerating
senescence
AUTHOR(S): Heyes, J. A.; Johnston, J. W.
CORPORATE SOURCE: New Zealand Institute for Crop and Food Research
Limited, Palmerston North, N. Z.
SOURCE: New Zealand Journal of Crop and Horticultural Science
(1998), 26(4), 319-324
CODEN: NZJSEF; ISSN: 0114-0671
PUBLISHER: SIR Publishing
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A single postharvest application of 1-methylcyclopropene (MCP) was
effective in prolonging vase life of Cymbidium orchids by 6 or 7 days, to
19 days. It also prevented shortening the vase life of Cymbidium orchids
by repeated applications of ethylene. The anti-ethylene effect of one MCP
treatment persisted throughout 3 successive challenges with ethylene at
5-day intervals. A supraoptimal concentration of MCP (500 ppb) showed no
adverse
effects. MCP was also effective in protecting Cymbidium orchids against
accelerated senescence caused by damage to the pollinia. Individual
flowers with damaged pollinia senesced even more rapidly than
ethylene-treated intact flowers. In the presence of MCP, flowers with
damaged pollinia had a vase life almost equal to that of undamaged
flowers.

IT 3100-04-7, 1-Methylcyclopropene
RL: **AGR (Agricultural use)**; BIOL (Biological study); USES (Uses)
(methylcyclopropene extends cut orchid flower vase life and prevents
senescence from damaged pollinia)
RN 3100-04-7 HCAPLUS
CN Cyclopropene, 1-methyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L22 ANSWER 38 OF 86 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1996:81686 HCAPLUS

DOCUMENT NUMBER: 124:109746

TITLE: Inhibition of ethylene response in plants.

INVENTOR(S): Sisler, Edward C.; Blankenship, Sylvia M.

PATENT ASSIGNEE(S): North Carolina State Univ., USA

SOURCE: PCT Int. Appl., 34 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

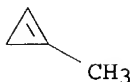
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

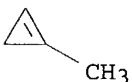
| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|----------|-----------------|-------------|
| WO 9533377 | A1 | 19951214 | WO 1995-US6501 | 19950522 |
| W: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TT | | | | |
| RW: KE, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG | | | | |
| US 5518988 | A | 19960521 | US 1994-253951 | 19940603 |
| CA 2191434 | AA | 19951214 | CA 1995-2191434 | 19950522 |
| CA 2191434 | C | 20010327 | | |
| CA 2319203 | AA | 19951214 | CA 1995-2319203 | 19950522 |
| CA 2319203 | C | 20011127 | | |
| CA 2319204 | AA | 19951214 | CA 1995-2319204 | 19950522 |
| CA 2319204 | C | 20011127 | | |
| AU 9526457 | A1 | 19960104 | AU 1995-26457 | 19950522 |
| AU 699373 | B2 | 19981203 | | |
| EP 762829 | A1 | 19970319 | EP 1995-921357 | 19950522 |
| EP 762829 | B1 | 20040908 | | |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE | | | | |
| JP 10501231 | T2 | 19980203 | JP 1996-500993 | 19950522 |
| JP 3504667 | B2 | 20040308 | | |
| JP 2003201201 | A2 | 20030718 | JP 2002-337668 | 19950522 |
| EP 1410712 | A2 | 20040421 | EP 2003-28079 | 19950522 |
| EP 1410712 | A3 | 20040506 | | |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE | | | | |
| PRIORITY APPLN. INFO.: | | | US 1994-253951 | A1 19940603 |
| | | | CA 1995-2191434 | A3 19950522 |
| | | | JP 1996-500993 | A3 19950522 |
| | | | WO 1995-US6501 | W 19950522 |
| | | | EP 1995-921357 | A3 19951228 |
| AB | The title method comprises applying to the plant ethylene response-inhibiting cyclopropene or its derivs. The methods is used for inhibiting abscission in plants, prolonging the life of cut flowers, inhibiting fruit ripening, etc.. | | | |
| IT | 2781-85-3, Cyclopropene 3100-04-7, 1-Methylcyclopropene | | | |
| | RL: AGR (Agricultural use); BIOL (Biological study); USES (Uses) (inhibition of ethylene response in plants) | | | |
| RN | 2781-85-3 HCAPLUS | | | |
| CN | Cyclopropene (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME) | | | |



RN 3100-04-7 HCAPLUS
CN Cyclopropene, 1-methyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



L22 ANSWER 39 OF 86 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1995:909818 HCAPLUS
DOCUMENT NUMBER: 123:308582
TITLE: 1-Methylcyclopropene prevents bud, flower, and leaf
abscission of Geraldton waxflower.
AUTHOR(S): Serek, Margrethe; Sisler, Edward C.; Tirosh, Tsipora;
Mayak, Shimon
CORPORATE SOURCE: Department of Agricultural Sciences, Royal Veterinary
and Agricultural University, Frederiksberg, 1958, Den.
SOURCE: HortScience (1995), 30(6), 1310
CODEN: HJHSAR; ISSN: 0018-5345
PUBLISHER: American Society for Horticultural Science
DOCUMENT TYPE: Journal
LANGUAGE: English
AB 1-Methylcyclopropene inhibited bud, flower and leaf abscission in
dry-stored Geraldton waxflower (Chamelaucium uncinatum) sprigs and
ethylene-induced bud and flower abscission in freshly-harvested Geraldton
waxflower.
IT 3100-04-7, 1-Methylcyclopropene
RL: AGR (Agricultural use); BIOL (Biological study); USES (Uses)
(prevention of bud, flower, and leaf abscission in Geraldton waxflower,
by methylcyclopropene)
RN 3100-04-7 HCAPLUS
CN Cyclopropene, 1-methyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



L22 ANSWER 40 OF 86 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1997:212790 HCAPLUS
DOCUMENT NUMBER: 126:221728
TITLE: 1-methylcyclopropene, a novel gaseous inhibitor of
ethylene action, improves the life of fruits, cut
flowers and potted plants
AUTHOR(S): Serek, M.; Sisler, E.C.; Reid, M.S.
CORPORATE SOURCE: Department of Agricultural Sciences, Section for
Horticulture, The Royal Veterinary and Agricultural
University, Frederiksberg C., 1958, Den.
SOURCE: Acta Horticulturae (1995), 394 (Plant Bioregulators in
Horticulture--1994), 337-345

CODEN: AHORA2; ISSN: 0567-7572

PUBLISHER: International Society for Horticultural Science
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB 1-Methylcyclopropene (1-MCP) inhibited a range of plant responses to ethylene, including ethylene-induced ripening of tomatoes and bananas, senescence of carnation flowers, abscission of florets from cut penstemon flowers, and abscission of flowers from begonia plants. The effectiveness of the inhibition is demonstrated by the very low dissociation consts. (K_d 2-8 nL L⁻¹) for the MCP-binding site complex. Treatment of plants with as little as 5 nL MCP/L air, for 6 h, inhibited subsequent ethylene action to the same extent as an optimal treatment with STS (the anionic silver thiosulfate complex), the only com. treatment presently available. In the absence of ethylene, treated ornamental plant materials performed similarly to those treated with STS, and significantly better than untreated controls.

IT 3100-04-7, 1-Methylcyclopropene

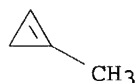
RL: AGR (Agricultural use); BUU (Biological use, unclassified);

BIOL (Biological study); USES (Uses)

(methylcyclopropene as inhibitor of ethylene effects on fruits, cut flowers and potted plants)

RN 3100-04-7 HCAPLUS

CN Cyclopropene, 1-methyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



L22 ANSWER 41 OF 86 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1995:892703 HCAPLUS

DOCUMENT NUMBER: 123:310519

TITLE: Inhibition of ethylene-induced cellular senescence symptoms by 1-methylcyclopropene, a new inhibitor of ethylene action

AUTHOR(S): Serek, M.; Tamari, G.; Sisler, E. C.; Borochoy, A.

CORPORATE SOURCE: R. Veterinary Agric. Univ., Section Horticulture, Fredriksberg C, DK-1958, Den.

SOURCE: Physiologia Plantarum (1995), 94(2), 229-32

CODEN: PHPLAI; ISSN: 0031-9317

PUBLISHER: Munksgaard

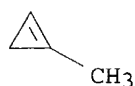
DOCUMENT TYPE: Journal

LANGUAGE: English

AB Ethylene is known to accelerate flower senescence, but the sequence of events that links its interaction with the tissue and the final senescence symptoms is still obscure. Recently, 1-methylcyclopropene (1-MCP) was found to inhibit ethylene-induced wilting in flowers. This work was carried out in order to investigate the effects of 1-MCP on cellular senescence symptoms in petunia flowers following exposure to ethylene. Cut petunia (*Petunia hybrida*) flowers that were exposed to ethylene for 12 h at concns. of 1-12 ppm wilted sooner than their untreated counterparts. This effect was abolished by a 6-h pre-treatment with 1-MCP. Immediately following the ethylene treatment, decreases in petal fresh weight and total protein content were measured, along with higher electrolyte leakage, and lower membrane lipid fluidity and protein content. When applied alone, 1-MCP had relatively little impact on these parameters. However, when the flowers were treated with 1-MCP prior to the ethylene treatment, ethylene

had no effect. These results indicate that while ethylenes effects on wilting were obvious 3 days after the treatment, cellular parameters were affected already at the end of the treatment. Since 1-MCP repressed these early ethylene effects, it was concluded that it interferes with ethylene action in petunia flowers at a rather early stage, long before apparent wilting.

IT 3100-04-7, 1-Methylcyclopropene
 RL: AGR (Agricultural use); BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study); USES (Uses)
 (inhibition of ethylene-induced cellular senescence symptoms by methylcyclopropene; a new inhibitor of ethylene action)
 RN 3100-04-7 HCAPLUS
 CN Cyclopropene, 1-methyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



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ACCESSION NUMBER: 2003:25253 AGRICOLA
 DOCUMENT NUMBER: IND23319880
 TITLE: Influence of ethylene inhibition by 1-methylcyclopropene on apricot quality, volatile production, and glycosidase activity of low- and high-aroma varieties of apricots.
 AUTHOR(S): Botondi, R.; DeSantis, D.; Bellincontro, A.; Vizovitis, K.; Mencarelli, F.
 AVAILABILITY: DNAL (381 J8223)
 SOURCE: Journal of agricultural and food chemistry, Feb 26, 2003. Vol. 51, No. 5. p. 1189-1200
 Publisher: Washington, D.C. : American Chemical Society.
 CODEN: JAFCAU; ISSN: 0021-8561
 NOTE: Includes references
 PUB. COUNTRY: District of Columbia; United States
 DOCUMENT TYPE: Article
 FILE SEGMENT: U.S. Imprints not USDA, Experiment or Extension
 LANGUAGE: English
 AB Apricots of two varieties, Ceccona with strong aroma and San Castrese with low aroma but good firmness, were treated with 1 microliter L-1 1-methylcyclopropene (1-MCP) for 12 h at 20 degrees C and then kept for shelf life at 20 degrees C and 85% relative humidity. 1-MCP treatment strongly inhibited ethylene production in apricots of both varieties, and softening was delayed. Fruit softening started before the rise of ethylene in air-treated apricots, which softened even when the rise of ethylene production was inhibited by 1-MCP. The softening reduction was more significant in Ceccona apricots than in San Castrese. Pectinmethylesterase (PME) activity declined in Ceccona fruit regardless of the treatment; in San Castrese, PME of air-treated fruit slightly increased, whereas in 1-MCP-treated apricots the activity declined. alpha-D-Galactosidase (alpha-gal) and beta-D-galactosidase (beta-gal) activities in Ceccona apricot were significantly reduced by 1-MCP treatment, whereas in San

Castrese apricot no difference in activities was observed between air- and 1-MCP-treated fruit. The pattern of beta-D-xylosidase (xyl) activity in San Castrese apricot was similar to that of beta-gal, showing a peak on day 4 without difference between treatments. alpha-D-Mannosidase (alpha-man) activity of air-treated apricots of both varieties rose slightly, and 1-MCP treatment decreased the enzyme activity in both varieties. alpha-D-Glucosidase (alpha-glu) decreased in air-treated apricots in both varieties, and 1-MCP maintained higher activity in Ceccona fruit but not in San Castrese. Acidity decreased during postharvest ripening regardless of the treatment, whereas soluble solids content (SSC) increased in Ceccona apricot and slightly diminished in San Castrese ones without any effect by 1-MCP treatment. 1-MCP did not show any effect on apricot color; in contrast, it affected the volatiles profile, especially in Ceccona apricot, reducing the synthesis of lactones and promoting the rise of terpenols.

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ACCESSION NUMBER: 2003:41141 AGRICOLA
DOCUMENT NUMBER: IND23328858
TITLE: Effects of 1-Methylcyclopropene and heat treatments on ripening and postharvest decay in 'Golden Delicious' apples.
AUTHOR(S): Saftner, R.A.; Abbott, J.A.; Conway, W.S.; Barden, C.L.
AVAILABILITY: DNAL (81 SO12)
SOURCE: Journal of the American Society for Horticultural Science, Jan 2003. Vol. 128, No. 1. p. 120-127
Publisher: Alexandria, Va. :
ISSN: 0003-1062
NOTE: Includes references
PUB. COUNTRY: United States; Virginia
DOCUMENT TYPE: Article
FILE SEGMENT: U.S. Imprints not USDA, Experiment or Extension
LANGUAGE: English

AB Prestorage heat, CA storage, and pre- and poststorage treatments with the ethylene action inhibitor, 1-methylcyclopropene (MCP), were tested for their efficacy at inhibiting fungal decay and maintaining quality in 'Golden Delicious' apples [*Malus sylvestris* (L.) Mill. Yellow Delicious Group] stored 0 to 5 months at 0 degrees C and 7 days at 20 degrees C. Before storage in air at 0 degrees C, preclimacteric fruit were treated with either MCP at a concentration of 1 microliter(.)L-1 for 17 hours at 20 degrees C, 38 degrees C air for 4 days, MCP plus heat, or left untreated. Some sets of untreated fruit were stored in a controlled atmosphere of 1.5 kPa O2 and 2.5 kPa CO2 at 0 degrees C while other sets were removed from cold storage in air after 2.5 or 5 months, warmed to 20 degrees C, and treated with 1 microliter(.)L-1 MCP for 17 hours. Prestorage MCP, heat, MCP plus heat treatments and CA storage decreased decay severity caused by wound-inoculated *Penicillium expansum* Link, *Botrytis cinerea* Pers.:Fr., and *Colletotrichum acutatum* Simmonds (teleomorph *Glomerella acutata* J.C. Guerber & J.C. Correll sp.nov.). Poststorage MCP treatment had no effect on decay severity. Both prestorage MCP treatment and CA storage delayed ripening as indicated by better retention of green peel color, titratable acidity, and Magness-Taylor flesh firmness, and the reduced respiration, ethylene production rates, and volatile levels that were observed upon transferring the fruit to 20 degrees C. The prestorage MCP treatment delayed ripening more than CA

storage. Following 5 months cold storage, the prestorage MCP treatment maintained the shape of the compression force/deformation curve compared with that of fruit at harvest, as did CA storage, but at a lower force profile. The heat treatment had mixed effects on ripening: it hastened loss of green peel color and titratable acidity, but maintained firmness and delayed increases in respiration, ethylene production and volatile levels following cold storage. The MCP plus heat treatment inhibited ripening more than heat treatment alone but less than MCP treatment alone. In one of 2 years, the MCP plus heat treatment resulted in superficial injury to some of the fruit. Results indicated that MCP may provide an effective alternative to CA for reducing decay severity and maintaining quality during postharvest storage of 'Golden Delicious' apples. Prestorage heat to control decay and maintain quality of apples needs further study, especially if used in combination with MCP.

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ACCESSION NUMBER: 2003:51449 AGRICOLA
DOCUMENT NUMBER: IND23340023
TITLE: Effect of ethylene and 1-methylcyclopropene on chlorophyll catabolism of broccoli florets.
AUTHOR(S): Gong, Y.; Mattheis, J.P.
AVAILABILITY: DNAL (QK745.P56)
SOURCE: Plant growth regulation, May 2003. Vol. 40, No. 1. p. 33-38
Publisher: Dordrecht : Kluwer Academic Publishers.
CODEN: PGRED3; ISSN: 0167-6903
NOTE: Includes references
PUB. COUNTRY: Netherlands
DOCUMENT TYPE: Article
FILE SEGMENT: Non-U.S. Imprint other than FAO
LANGUAGE: English

AB Branchlets of broccoli (*Brassica oleracea* L.) were used to examine ethylene-stimulated chlorophyll catabolism. Branchlets treated with: 1) air (CK); 2) 1 microliters (.) L-1 1-methylcyclopropene (1-MCP) for 14 hr at 20 degrees C; 3) 1000 microliters (.) L-1 ethylene (C₂H₄) for 5 hr at 20 degrees C; or 4) 1-MCP then C₂H₄, were stored in the dark at 20 degrees C for up to 3 d. Chlorophyll (Chl) content and branchlet hue angle decreased during the storage period and 1-MCP treatment delayed this change. Chl degradation in broccoli was accelerated by exposure to C₂H₄, especially for Chl a. Prior treatment with 1-MCP prevented degreening stimulated by C₂H₄. Lipooxygenase activity was not altered by any of the treatments, however, 1-MCP with or without ethylene resulted in reduced activity of chlorophyllase (Chlase) and peroxidase (POD). Exposure to C₂H₄ stimulated Chlase activity and extended the duration of high POD activity. Treatment with 1-MCP followed by C₂H₄ resulted in reduced POD activity and delayed the increase in Chlase activity. The results suggest chlorophyll in broccoli can be degraded via the POD-hydrogen peroxide system. Exposure to C₂H₄ enhances activity of Chlase and extends the duration of high POD activity, and these responses may accelerate degreening. Treatment with 1-MCP delays yellowing of broccoli, an effect that may be due to the 1-MCP-induced reduction in POD and Chlase activities.

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ACCESSION NUMBER: 2003:51442 AGRICOLA
DOCUMENT NUMBER: IND23340016
TITLE: Expression and activities of ethylene biosynthesis enzymes during ripening of banana fruits and effect of 1-MCP treatment.
AUTHOR(S): Pathak, N.; Asif, M.H.; Dhawan, P.; Srivastava, M.K.; Nath, P.
AVAILABILITY: DNAL (QK745.P56)
SOURCE: Plant growth regulation, May 2003. Vol. 40, No. 1. p. 11-19
Publisher: Dordrecht : Kluwer Academic Publishers.
CODEN: PGRED3; ISSN: 0167-6903
NOTE: Includes references
PUB. COUNTRY: Netherlands
DOCUMENT TYPE: Article
FILE SEGMENT: Non-U.S. Imprint other than FAO
LANGUAGE: English

AB The respiratory climacteric, ethylene evolution and activities and expression of ethylene biosynthesis enzymes show a characteristic pattern in banana during ethylene induced ripening. A unique biphasic respiratory climacteric with a 10 and 6 fold increment in respiration rates on days 2 and 6 respectively after ethylene treatment is preceded by ethylene evolution on days 1 and 4 with 8.3 and 6.93 fold increments respectively. This represents a unique feature of ripening in banana. While ACC synthase transcript accumulation matched the respiratory climacteric, the ACC synthase activity and ACC oxidase transcript accumulation showed a different pattern. The most significant observation was the effect of 1-MCP on ACC content and in vitro ACC oxidase activity. Though 1-MCP treated fruit did not show any respiratory climacteric or burst in ethylene production, it did not inhibit completely ACC accumulation and in vitro ACC oxidase activity. No transcript accumulation of ACC synthase was observed at any time in 1-MCP treated fruits, whereas a basal level of ACC oxidase transcript was detected throughout. It is concluded that ethylene induced ripening of banana is characteristically different from that of other climacteric fruits and that ethylene biosynthesis may have more than one mechanisms operating during ripening which are tightly controlled at various levels.

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ACCESSION NUMBER: 2003:21420 AGRICOLA
DOCUMENT NUMBER: IND23310570
TITLE: Effect of 1-methylcyclopropene on volatile emission and aroma in cv. Anna apples.
AUTHOR(S): Lurie, S.; Pre-Aymard, C.; Ravid, U.; Larkov, O.; Fallik, E.
AVAILABILITY: DNAL (381 J8223)
SOURCE: Journal of agricultural and food chemistry, July 17, 2002. Vol. 50, No. 15. p. 4251-4256
Publisher: Washington, D.C. : American Chemical Society.
CODEN: JAFCAU; ISSN: 0021-8561
NOTE: Includes references
PUB. COUNTRY: District of Columbia; United States
DOCUMENT TYPE: Article
FILE SEGMENT: U.S. Imprints not USDA, Experiment or Extension
LANGUAGE: English

AB The rapidly ripening summer apple cultivar Anna was treated with 0.1 microliter L(-1) and 1 microliter L(-1) 1-methyl-cyclopropene (MCP) at harvest and kept at 20 degrees C, or stored for 5 weeks at 0 degrees C and then transferred to 20 degrees C. Total volatiles were not reduced by treatment with 0.1 microliter L(-1) MCP, but were 70% lower in fruits treated with 1 microliter L(-1) MCP than in untreated fruits. Ethylene production was 50% and 95% inhibited by 0.1 microliter L(-1) and 1 microliter L(-1) MCP, respectively. The volatiles produced by fruit at harvest were predominantly aldehydes and alcohols, with some acetate esters as well as 2-methyl butyl acetate and beta-damascenone. During ripening, the acetate and butyrate esters increased greatly and alcohols and aldehydes decreased. MCP-treated apples retained more alcohols, aldehydes, and beta-damascenone volatiles than did untreated apples. Sensory evaluation found that control and 0.1 microliter L(-1) treated apples developed more fruity, ripe, and overall aromas, but the preference was for the 1 microliter L(-1) treated apples with a less ripe aroma.

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ACCESSION NUMBER: 2003:42002 AGRICOLA
DOCUMENT NUMBER: IND23330504
TITLE: Responses of 'Bing' and 'Rainier' sweet cherries to ethylene and 1-methylcyclopropene.
AUTHOR(S): Gong, Y.P.; Fan, X.T.; Mattheis, J.P.
AVAILABILITY: DNAL (81 SO12)
SOURCE: Journal of the American Society for Horticultural Science, Sept 2002. Vol. 127, No. 5. p. 831-835
Publisher: Alexandria, Va. :
ISSN: 0003-1062
NOTE: Includes references
PUB. COUNTRY: United States; Virginia
DOCUMENT TYPE: Article
FILE SEGMENT: U.S. Imprints not USDA, Experiment or Extension
LANGUAGE: English

AB 'Bing' and 'Rainier' sweet cherry (*Prunus avium* L.) fruit treated with 1-methylcyclopropene (1-MCP) were stored at 20 degrees C in air or 35 microliter(.)L-1 ethylene. Ethylene production by both 'Bing' and 'Rainier' fruit stored in air was transiently stimulated following 1-MCP treatments, however, there were no significant effects of 1-MCP on respiration rate. Exogenous ethylene stimulated respiration regardless of prior treatment with 1-MCP. Although 1-MCP treatment reduced the increase in 'Bing' respiration induced by ethylene, the reduction was less than reported previously for climacteric fruit. These results suggest that stimulation of sweet cherry fruit respiration by ethylene occurs via a process that may be independent of receptors to which 1-MCP binds. Postharvest changes in fruit color and development of stem browning were not altered by 1-MCP treatment, and exogenous ethylene accelerated the development of stem browning regardless of prior treatment with 1-MCP.

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ACCESSION NUMBER: 2003:15176 AGRICOLA
DOCUMENT NUMBER: IND23307531
TITLE: Differential regulation of genes encoding ethylene biosynthesis enzymes and ethylene response sensor

ortholog during ripening and in response to wounding in avocados.

AUTHOR(S): Owino, W.O.; Nakano, R.; Kubo, Y.; Inaba, A.

AVAILABILITY: DNAL (81 SO12)

SOURCE: Journal of the American Society for Horticultural Science, July 2002. Vol. 127, No. 4. p. 520-527
 Publisher: Alexandria, Va. :
 ISSN: 0003-1062

NOTE: Includes references

PUB. COUNTRY: United States; Virginia

DOCUMENT TYPE: Article

FILE SEGMENT: U.S. Imprints not USDA, Experiment or Extension

LANGUAGE: English

AB We investigated the differential regulation of two 1-aminocyclopropane-1-carboxylate synthase (ACS) genes, one 1-aminocyclopropane-1-carboxylate oxidase (ACO) gene and one ethylene response sensor (ERS1) ortholog during ripening and in response to wounding in avocados (*Persea americana* Mill. 'Bacon'). The 1-aminocyclopropane-1-carboxylate (ACC) content, ACS activity and detectable expression of PA-ACS1 mRNA increased and reached a maximum prior to the climacteric peak, whereas ACO activity and the PA-ACO mRNA levels increased markedly only at the upsurge of ripening ethylene. A basal level of PA-ERS1 transcript was detected as from harvest, however, PA-ERS1 transcript was hyper-induced at the climacteric peak of ethylene production. 1-Methylcyclopropene (1-MCP) application at the preclimacteric and the onset of climacteric stages inhibited the ACS and ACO activities, the transcription of PA-ACS1 and suppressed PA-ACO and PA-ERS1 mRNAs to trace levels. Discontinuation of 1-MCP treatment led to super-induction of PA-ACS1, PA-ACO, and PA-ERS1 transcripts. Wound induced ethylene biosynthesis and wound-induced PA-ACS2 mRNA accumulation were enhanced by 1-MCP, whereas wound-induced PA-ACO mRNA accumulation was unaffected by 1-MCP. These results indicate positive feedback regulation of the PA-ACS1 gene and negative feedback regulation of the PA-ACS2 gene by ethylene, while PA-ACO exhibits positive feedback regulation by ethylene and is also induced by wounding. The hyper-induction of PA-ERS1 mRNA at relatively high concentrations of ethylene may be a mechanism of avocados to regulate the ethylene responsiveness of the tissues by dissipation of the gas.

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ACCESSION NUMBER: 2003:21199 AGRICOLA

DOCUMENT NUMBER: IND23310126

TITLE: Influence of temperature and duration of 1-methylcyclopropene (1-MCP) treatment on apple quality.

AUTHOR(S): DeEll, J.R.; Murr, D.P.; Porteous, M.D.; Rupasinghe, H.P.V.

AVAILABILITY: DNAL (SB129.P66)

SOURCE: Postharvest biology and technology, Apr 2002. Vol. 24, No. 3. p. 349-353
 Publisher: Amsterdam : Elsevier Science B.V.
 CODEN: PBTEED; ISSN: 0925-5214

NOTE: Includes references

PUB. COUNTRY: Netherlands

DOCUMENT TYPE: Article

FILE SEGMENT: Non-U.S. Imprint other than FAO

LANGUAGE: English

AB The objectives of this study were to determine the efficacy of 1-MCP

treatments at various temperatures and durations, and to evaluate the effects of 1-MCP on 'Cortland' and 'Empire' apple quality after storage. Fruit were exposed to 0.6 microliter l(-1) of 1-MCP for 0, 3, 6, 9, 12, 16, 24, or 48 h at 3, 13, or 23 degrees C. Following treatment, fruit were stored in ambient air at 0-1 degrees C for 120 days and then held at 20 degrees C for 7 days. 'Cortland' apples treated with 1-MCP at 3 degrees C showed improved firmness retention (> 63.0 N) with at least 9 h of treatment, whereas those treated at either 13 or 23 degrees C showed improved firmness retention with at least 6 h of treatment. 'Empire' apples treated with 1-MCP showed improved firmness retention (> 67.5 N) with only 3 h of treatment regardless of temperature, but those treated at 3 degrees C for 3 h no longer had the full firmness advantage after an additional 7 days at 20 degrees C. There was no significant effect of 1-MCP on soluble solids concentration. Treatment with 1-MCP for 3 h at any of the temperatures significantly reduced the incidence of superficial scald in 'Cortland' apples. Overall, the results indicate that 1-MCP has tremendous potential for maintaining apple quality during storage, but its efficacy can be affected by treatment temperature and duration as well as by apple cultivar.

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ACCESSION NUMBER: 2003:46193 AGRICOLA
DOCUMENT NUMBER: IND23332911
TITLE: Regulation of detached coriander leaf senescence by 1-methylcyclopropene and ethylene.
AUTHOR(S): Jiang, W.B.; Sheng, Q.; Zhou, X.J.; Zhang, M.J.; Liu, X.J.
AVAILABILITY: DNAL (SB129.P66)
SOURCE: Postharvest biology and technology, Nov '2002. Vol. 26, No. 3. p. 339-345
Publisher: Amsterdam : Elsevier Science B.V.
CODEN: PBTEED; ISSN: 0925-5214
NOTE: Includes references
PUB. COUNTRY: Netherlands
DOCUMENT TYPE: Article
FILE SEGMENT: Non-U.S. Imprint other than FAO
LANGUAGE: English

AB Senescence of detached coriander was significantly inhibited by treatments with 50 nl l(-1) or higher concentrations of 1-methylcyclopropene (1-MCP). During the 8 days of storage at 20 degrees C, chlorophyll and protein degradation in the leaves was significantly retarded by 100 nl l(-1) 1-MCP, and promoted by 10 microliter l(-1) ethylene. Treatment with 1-MCP together with ethylene, however, led to protein levels considerably higher than those measured following ethylene treatment and even higher than those in control leaves. 1-MCP decreased and ethylene increased accumulation of amino acids. Treatment with 1-MCP together with ethylene remarkably reduced accumulation of amino acids to levels lower than those in control leaves. The respiration rate in leaves treated with 1-MCP was substantially higher than that in controls during the last 4 days. Ethylene production by leaves was significantly enhanced by treatment with 1-MCP. The effects of 1-MCP in retarding and of ethylene in enhancing senescence were reduced at low temperatures (10 degrees C for 6 days or at 5 degrees C for 2 weeks). This may indicate that sensitivity of coriander to ethylene is reduced at low temperature. These results suggest that ethylene plays a significant role in senescence of coriander leaves; commercial use of 1-MCP may enhance coriander quality under suboptimal

postharvest conditions.

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ACCESSION NUMBER: 2003:46951 AGRICOLA
DOCUMENT NUMBER: IND23333902
TITLE: Water stress-induced ethylene in the calyx triggers autocatalytic ethylene production and fruit softening in 'Tonewase' persimmon grown in a heated plastic-house.
AUTHOR(S): Nakano, R.; Inoue, S.; Kubo, Y.; Inaba, A.
AVAILABILITY: DNAL (SB129.P66)
SOURCE: Postharvest biology and technology, July 2002. Vol. 25, No. 3. p. 293-300
Publisher: Amsterdam : Elsevier Science B.V.
CODEN: PBTEED; ISSN: 0925-5214
NOTE: Includes references
PUB. COUNTRY: Netherlands
DOCUMENT TYPE: Article
FILE SEGMENT: Non-U.S. Imprint other than FAO
LANGUAGE: English

AB 'Tonewase' Japanese persimmon fruit (*Diospyros khaki* Thunb.) grown in a heated plastic-house softens rapidly within several days of harvest, which is a major problem in marketing of this cultivar. In this study, we elucidated the involvement of water stress-induced ethylene in fruit softening and investigated the induction mechanism of this ethylene biosynthesis occurring in specific tissues at the molecular level. Two instances of increase in ethylene production were observed in fruit held in ambient low humidity conditions (40-60% RH), an initial increase on the 1st and 2nd days and a second increase on the 6th and 8th days after harvest. Increase in ethylene production was accompanied by rapid softening in these fruit. Fruit held in high humidity conditions (> 95%) neither produced detectable levels of ethylene nor softened rapidly. Moreover, treatment of the fruit held in low humidity with 1-methylcyclopropene (1-MCP), a strong inhibitor of ethylene action, inhibited fruit softening remarkably. These results suggest the involvement of water stress-induced ethylene in fruit softening. 1-MCP also suppressed the second increase in ethylene production but not the initial increase, indicating that the initial increase is induced directly in response to the primary water stress signal while the second is induced autocatalytically by the ethylene produced during the initial phase. During the initial increase in ethylene, the calyx produced more than 5 nl g⁻¹ h⁻¹ of ethylene accompanied by increased accumulation of 1-aminocyclopropane-1-carboxylic acid (ACC) and expression of DK-ACS2. In pulp, 0.5 nl g⁻¹ h⁻¹ of ethylene was detected but no increase in ACC content or expression of any ethylene biosynthetic genes was observed. During the second increase in ethylene, ethylene production in the calyx was not detected whereas the pulp produced 0.2-0.4 nl g⁻¹ h⁻¹ of ethylene with a marked increase in ACC content and expression of the two ACC synthase (DK-ACS1, DK-ACS2) and one ACC oxidase (DK-ACO1) genes. These results suggest that in plastic-house 'Tonewase' persimmon fruit, ethylene production is initiated in the calyx in response to water stress through activated expression of DK-ACS2, and this ethylene in turn induces autocatalytic ethylene production in the pulp. As the flesh firmness decreased markedly just after the initial ethylene production, the results also indicate that the fruit softening is due to the action of ethylene produced in the calyx.

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ACCESSION NUMBER: 2003:46947 AGRICOLA
 DOCUMENT NUMBER: IND23333895
 TITLE: Influence of 1-methylcyclopropene (1-MCP) on ripening and cell-wall matrix polysaccharides of avocado (*Persea americana*) fruit.
 AUTHOR(S): Jeong, J.; Huber, D.J.; Sargent, S.A.
 AVAILABILITY: DNAL (SB129.P66)
 SOURCE: Postharvest biology and technology, July 2002. Vol. 25, No. 3. p. 241-256
 Publisher: Amsterdam : Elsevier Science B.V.
 CODEN: PBTEED; ISSN: 0925-5214
 NOTE: Includes references
 PUB. COUNTRY: Netherlands
 DOCUMENT TYPE: Article
 FILE SEGMENT: Non-U.S. Imprint other than FAO
 LANGUAGE: English

AB West Indian-type avocado (*Persea americana* Mill. cv. 'Simmonds') fruit were treated with two different concentrations (0.09 and 0.45 microliter l(-1)) of 1-methylcyclopropene (1-MCP) for three exposure times (6, 12, and 24 h) at 20 degrees C. The fruit were then stored at 20 degrees C in ethylene-free air for ripening assessment. Firmness, weight loss, respiration and C₂H₄ production, peel color, cell-wall enzymes (polygalacturonase (PG), pectinmethylesterase, alpha-,beta-galactosidase, and C(x)-cellulase) and cell-wall matrix polysaccharides (polyuronides and hemicellulose) were monitored during storage. 1-MCP treatment at 0.45 microliter l(-1) for 24 h at 20 degrees C delayed the ripening of avocado fruit by 4 days at 20 degrees C. This delay was characterized by a significant reduction in the rate of fruit softening and in the timing and intensity of the ethylene and respiratory climacterics. Avocado treated with 1-MCP (0.45 microliter l(-1)) for 24 h at 20 degrees C also showed significantly less weight loss and retained more green color than control fruit at the full-ripe stage (10-20 N). The delay in avocado ripening was influenced by 1-MCP concentration, exposure duration, and exposure temperature. 1-MCP treatment affected the activity trends of all cell-wall enzymes measured and completely suppressed increases in PG activity for up to 12 days. Consistent with the activity trends of PG, polyuronides from 1-MCP treated fruit when fully ripe exhibited less extensive molecular mass downshifts compared with the control fruit. The data indicate that the primary phase of avocado fruit softening occurs in the absence of appreciable PG activity. 1-MCP treatment also delayed and slightly reduced the depolymerization of 4 M alkali-soluble hemicelluloses, including xyloglucan.

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ACCESSION NUMBER: 2002:56880 AGRICOLA
 DOCUMENT NUMBER: IND23285626
 TITLE: Ethylene involvement in chilling injury symptoms of avocado during cold storage.
 AUTHOR(S): Pesis, E.; Ackerman, M.; Ben-Arie, R.; Feygenberg, O.; Feng, X.Q.; Apelbaum, A.; Goren, R.; Prusky, D.
 AVAILABILITY: DNAL (SB129.P66)

SOURCE: Postharvest biology and technology, Mar 2002. Vol. 24,
No. 2. p. 171-181
Publisher: Amsterdam : Elsevier Science B.V.
CODEN: PBTEED; ISSN: 0925-5214

NOTE: Includes references

PUB. COUNTRY: Netherlands

DOCUMENT TYPE: Article

FILE SEGMENT: Non-U.S. Imprint other than FAO

LANGUAGE: English

AB Application of exogenous ethylene, irrespective of the method of application, caused intensification of mesocarp discoloration in avocado fruit (*Persea americana* Mill.) during cold storage of all cultivars tested. 'Ettinger' fruit treated with Ethrel (2-chloroethyl phosphonic acid) prior to packing and storage developed severe chilling injury (CI) symptoms, expressed as mesocarp discoloration after 3 weeks at 5 degrees C. 'Fuerte' fruit treated with ethylene gas (100 microliter) for 24 h at 20 degrees C prior to storage at 5 degrees C exhibited mesocarp discoloration, which increased dramatically during shelf life at 20 degrees C. 'Fuerte' fruit treated in cold storage with a continuous low ethylene dose (4 microliter l(-1)) developed severe browning in the fruit pulp after 3 weeks at 5 degrees C. 'Hass' fruit treated with 50 microliter l(-1) ethylene, for 12, 24 or 48 h at 5 degrees C showed a gradual increase in mesocarp discoloration after 3 weeks in cold storage plus shelf life; the 48 h ethylene-treated fruit exhibited the most severe pulp browning. Use of absorbent sachets that removed ethylene from modified atmosphere (MA) packaging reduced mesocarp discoloration and decay development in 'Hass' fruit after 5 weeks storage at 5 degrees C. Application of 1-methylcyclopropene (1-MCP), reduced mesocarp discoloration, decay development and polyphenol oxidase activity, whereas this enzyme activity was induced in ethylene-treated fruits that were cold stored for 4 weeks.

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ACCESSION NUMBER: 2003:46350 AGRICOLA

DOCUMENT NUMBER: IND23333121

TITLE: 1-MCP is more effective on a floral brassica (*Brassica oleracea* var. *italica* L.) than a leafy brassica (*Brassica rapa* var. *chinensis*).

AUTHOR(S): Able, A.J.; Wong, L.S.; Prasad, A.; O'Hare, T.J.

AVAILABILITY: DNAL (SB129.P66)

SOURCE: Postharvest biology and technology, Sept 2002. Vol. 26, No. 2. p. 147-155
Publisher: Amsterdam : Elsevier Science B.V.
CODEN: PBTEED; ISSN: 0925-5214

NOTE: Includes references

PUB. COUNTRY: Netherlands

DOCUMENT TYPE: Article

FILE SEGMENT: Non-U.S. Imprint other than FAO

LANGUAGE: English

AB Florets of broccoli (*Brassica oleracea* var. *italica* L.) and the youngest fully expanded leaf detached from pak choy (*Brassica rapa* var. *chinensis*) were treated with 1-methylcyclopropene (1-MCP) overnight (16 h) and then stored at supermarket retail temperature (10 degrees C). A concentration of 12 microliter l(-1) was considered optimal for both pak choy leaves and broccoli florets. 1-MCP increased shelf life of broccoli florets by just greater than 20% but had little effect on pak choy shelf life (increases

between 10 and 20%) in the absence of exogenously applied ethylene. Multiple applications had no further impact while 1-MCP needed to be applied as soon as possible after harvest to have maximal effect. If 1-MCP treatment was applied overnight at 20 degrees C prior to storage at 10 degrees C, its effect was slightly increased. However, 1-MCP did protect broccoli and pak choy from the effects of exogenously applied ethylene (0.1 or 1 microliter l(-1)) suggesting it may be useful during retail or storage with ethylene-producing commodities. Differences between the efficacies of 1-MCP on florets compared with leaves are discussed.

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ACCESSION NUMBER: 2002:56873 AGRICOLA
DOCUMENT NUMBER: IND23285612
TITLE: Effect of 1-methylcyclopropene on ripening of 'Canino' apricots and 'Royal Zee' plums.
AUTHOR(S): Dong, L.; Lurie, S.; Zhou, H.W.
AVAILABILITY: DNAL (SB129.P66)
SOURCE: Postharvest biology and technology, Mar 2002. Vol. 24, No. 2. p. 135-145
Publisher: Amsterdam : Elsevier Science B.V.
CODEN: PBTEED; ISSN: 0925-5214
NOTE: Includes references
PUB. COUNTRY: Netherlands
DOCUMENT TYPE: Article
FILE SEGMENT: Non-U.S. Imprint other than FAO
LANGUAGE: English

AB 'Canino' apricots and 'Royal Zee' plums were treated with 1000 nl l(-1) 1-methylcyclopropene (1-MCP) at 20 degrees C for 20 h following harvest before 0 degrees C storage. After 5 days storage for apricots and 10 days for plums and after 30 days storage for both, fruit were moved to 20 degrees C for ripening. In addition, apricots were stored for 20 days and then treated with 1-MCP concentrations of 10, 100 and 1000 nl l(-1) at removal and held for ripening. Ethylene production and respiration rate, as well as fruit quality of apricots varied with treatment. Ethylene production was efficiently inhibited by 1000 nl l(-1) 1-MCP in fruit treated after storage but not in fruit treated before storage. Fruit softening was associated with ethylene production and affected by 1-MCP in a concentration dependent manner when treated after storage, while 1-MCP did not affect softening in prestorage treated fruit. The color change of fruit was ethylene-independent and not affected by 1-MCP. Internal flesh browning was decreased by 1-MCP regardless of the concentration when treated after storage, while it was enhanced in fruit treated before storage. Decay development in apricots was decreased by 1-MCP in a concentration dependent manner. Ethylene production and respiration in 'Royal Zee' plums was greatly inhibited by 1-MCP during ripening after both short-term (10 day) and long term (30 day) storage. Parameters associated with ripening processes were decreased significantly by 1-MCP, including softening, color change, and loss of titratable acidity. These data demonstrate that 1-MCP has potential to delay ripening of apricots and plums, but the cultivar, maturity of fruit, and time of application must be chosen carefully. It is suggested that 1-MCP is more efficient for extending the shelf life and improving the quality of 'Canino' apricots directly marketed or after storage, whereas it might be a potent compound for extending both storage period and shelf life of 'Royal Zee' plums.

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ACCESSION NUMBER: 2003:46346 AGRICOLA
DOCUMENT NUMBER: IND23333116
TITLE: Ethylene perception is required for the expression of tomato ripening-related genes and associated physiological changes even at advanced stages of ripening.
AUTHOR(S): Hoeberichts, F.A.; Plas, L.H.W. van der.; Woltering, E.J.
AVAILABILITY: DNAL (SB129.P66)
SOURCE: Postharvest biology and technology, Sept 2002. Vol. 26, No. 2. p. 125-133
Publisher: Amsterdam : Elsevier Science B.V.
CODEN: PBTEED; ISSN: 0925-5214
NOTE: Includes references
PUB. COUNTRY: Netherlands
DOCUMENT TYPE: Article
FILE SEGMENT: Non-U.S. Imprint other than FAO
LANGUAGE: English
AB Treatment of tomato fruit (*Lycopersicon esculentum* L. cv Prisca) with 1-methylcyclopropene (1-MCP), a potent inhibitor of ethylene action, delayed colour development, softening, and ethylene production in tomato fruit harvested at the mature green breaker, and orange stages. 1-MCP treatment also decreased the mRNA abundance of phytoene synthase 1 (PSY1), expansin 1 (EXP1), and 1-aminocyclopropane-1-carboxylic acid (ACC) oxidase 1 (ACO1), three ripening-related tomato genes, in mature green, breaker, orange, and red ripe fruit. These results demonstrate that the ripening process can be inhibited both on a physiological and molecular level, even at very advanced stages of ripening. The effects of 1-MCP on ripening lasted 5-7 days and could be prolonged by renewed exposure.

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ACCESSION NUMBER: 2002:47323 AGRICOLA
DOCUMENT NUMBER: IND23281203
TITLE: 1-methylcyclopropene treatment effects on intact and fresh-cut apple.
AUTHOR(S): Jiang, Y.M.; Joyce, D.C.
AVAILABILITY: DNAL (SB317.5.J68)
SOURCE: The journal of horticultural science & biotechnology, Jan 2002. Vol. 77, No. 1. p. 19-21
Publisher: Ashford, Kent, England : Headley Brothers Ltd., [1998-
CODEN: JHSBFA
NOTE: Includes references
PUB. COUNTRY: England; United Kingdom
DOCUMENT TYPE: Article
FILE SEGMENT: Non-U.S. Imprint other than FAO
LANGUAGE: English

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ACCESSION NUMBER: 2002:45639 AGRICOLA

DOCUMENT NUMBER: IND23278127
TITLE: Softening response of banana fruit treated with 1-methylcyclopropene to high temperature exposure.
AUTHOR(S): Jiang, Y.; Joyce, D.C.; Macnish, A.J.
AVAILABILITY: DNAL (QK745.P56)
SOURCE: Plant growth regulation, Jan 2002. Vol. 36, No. 1. p. 7-11
Publisher: Dordrecht : Kluwer Academic Publishers.
CODEN: PGRED3; ISSN: 0167-6903
NOTE: Includes references
PUB. COUNTRY: Netherlands
DOCUMENT TYPE: Article
FILE SEGMENT: Non-U.S. Imprint other than FAO
LANGUAGE: English

AB Elevated temperatures experienced by harvested fruit can modulate their ripening. Moreover, heat treatments can be applied to reduce susceptibility to low temperature disorders and to help control pests and diseases. The ethylene-binding inhibitor 1-methylcyclopropene (1-MCP) was used to investigate the ethylene-mediated softening response of banana fruit exposed to elevated temperatures. A preliminary experiment was conducted to determine levels of high temperature (30-50 degrees C) imposed for a short period of time that did not cause skin scald. The softening response of Williams banana fruit treated with 1-MCP at various temperatures and durations was characterised in subsequent experiments. Exposure of fruit to hot air for 60 min at 45 degrees C or for 30 min at 50 degrees C caused 30-40% peel scald. The peel was not visibly damaged for fruit treated at 40 degrees C for up to 60 min. Softening of fruit treated with 1-MCP for 12 h at 25 degrees C and then held for 7 days at 30, 35 or 40 degrees C was inhibited in proportion to increasing concentration over the range 0.01-1 microliter/l 1-MCP. However, softening was progressively enhanced with increasing holding temperatures from 30-40 degrees C and/or time from 1-7 days, although fruit treated with the higher 1-MCP concentrations of 1 and 10 microliter/l were comparatively less responsive to heat. Although banana fruit held at 30-40 degrees C did not de-green, their increased softening at elevated temperatures and inhibition of this response by 1-MCP suggest that heat enhances synthesis of new ethylene sites which mediated banana fruit softening.

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ACCESSION NUMBER: 2002:3236 AGRICOLA
DOCUMENT NUMBER: IND23245086
TITLE: Ripening of 'Red Rosa' plums: effect of ethylene and 1-methylcyclopropene.
AUTHOR(S): Dong, L.; Zhou, H.W.; Sonogo, L.; Lers, A.; Lurie, S.
AVAILABILITY: DNAL (QK710.A9)
SOURCE: Australian journal of plant physiology, 2001. Vol. 28, No. 10. p. 1039-1045
Publisher: Collingwood, Vic. : CSIRO Publishing.
CODEN: AJPPCH; ISSN: 0310-7841
Gov. Source: Federal
NOTE: Includes references
PUB. COUNTRY: Australia
DOCUMENT TYPE: Article
FILE SEGMENT: Non-U.S. Imprint other than FAO
LANGUAGE: English

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ACCESSION NUMBER: 2002:1628 AGRICOLA
DOCUMENT NUMBER: IND23240914
TITLE: Gibberellic acid slows postharvest degreening of 'Oroblanco' citrus fruits.
AUTHOR(S): Porat, R.; Feng, X.; Huberman, M.; Galili, D.; Goren, R.; Goldschmidt, E.E.
SOURCE: HortScience : a publication of the American Society for Horticultural Science, Aug 2001. Vol. 36, No. 5. p. 937-940
Publisher: Alexandria, Va. : The American Society for Horticultural Science.
CODEN: HJHSAR; ISSN: 0018-5345
NOTE: Includes references
PUB. COUNTRY: United States; Virginia
DOCUMENT TYPE: Article
FILE SEGMENT: U.S. Imprints not USDA, Experiment or Extension
LANGUAGE: English

AB 'Oroblanco' is an early-maturing pummelo-grapefruit hybrid (Citrus grandis Osbeck x C. paradisi Macf.). The fruit are usually picked and marketed while the peel color is still green; however, in some cases they can lose this green color during postharvest shipping and storage, which diminishes their commercial value. The effects of storage temperatures, gibberellic acid (GA), ethylene, and 1-methylcyclopropene (1-MCP) on the degreening of 'Oroblanco' fruit were examined. Storage temperature was critical for retaining fruit color: at 2 degrees C the fruit remained green for a period up to 5 weeks, whereas at storage temperatures of 6, 12, and 20 degrees C there was a progressive increase in the rate of degreening. Applications of GA, either as preharvest sprays or as postharvest dip treatments, effectively retained the green fruit color. Ethylene exposures up to 100 microliter(.)L-1 for 3 days had only a slight effect on fruit degreening, and 1-MCP treatments up to 200 nL(.)L-1 for 16 hours had no effect at all. The slight influence of ethylene and the ineffectiveness of 1-MCP on fruit color change can not be attributed to difficulties in their application, since in the same experiments ethylene markedly induced peduncle abscission, and 1-MCP effectively inhibited this ethylene effect. Accordingly, ethylene had only a relatively small effect on the induction of chlorophyllase enzyme activity in green 'Oroblanco' peel tissue.

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ACCESSION NUMBER: 2001:81038 AGRICOLA
DOCUMENT NUMBER: IND23235104
TITLE: Harvest maturity, storage temperature, and 1-MCP application frequency alter firmness retention and chlorophyll fluorescence of 'Redchief Delicious' apples.
AUTHOR(S): Mir, N.A.; Curell, E.; Khan, N.; Whitaker, M.; Beaudry, R.M.
AVAILABILITY: DNAL (81 SO12)
SOURCE: Journal of the American Society for Horticultural Science, Sept 2001. v Vol. 126, No. 5. p. 618-624
Publisher: Alexandria, Va. :
ISSN: 0003-1062

NOTE: Includes references
PUB. COUNTRY: United States; Virginia
DOCUMENT TYPE: Article
FILE SEGMENT: U.S. Imprints not USDA, Experiment or Extension
LANGUAGE: English

AB Fruit of 'Redchief Delicious' apple [*Malus sylvestris* (L) Mill. var. *domestica* (Borkh.) Mansf.] were harvested 1 week before the climacteric (harvest 1), at the onset of the climacteric (harvest 2), and 1 week after the onset of the climacteric (harvest 3). Fruit were stored at 0, 5, 10, 15, or 20 degrees C and were treated with 0.7 microliter(.)L-1 1-MCP on a once-per-week, once-per-2-week, once-per-month, and once-per-year basis or were left nontreated. The initial 1-MCP treatment was at 20 degrees C and subsequent applications were at storage temperatures. The compound slowed softening at all temperatures relative to nontreated fruit, however as temperature decreased, the benefits of 1-MCP application became less pronounced. Effectiveness of 1-MCP declined slightly as harvest maturity increased. Efficacy of 1-MCP treatment increased with greater frequency of application at 5, 10, 15, and 20 degrees C, but not at 0 degrees C. Fruit stored without refrigeration (20 degrees C) for more than 100 days did not soften significantly when treated once per week with 1-MCP. However, decay was a significant problem for treated and nontreated fruit stored at temperatures >5 degrees C; 1-MCP application reduced, but did not prevent decay. Rate of decline in titratable acidity increased with storage temperature and 1-MCP had no significant effect on retarding the decline in acid content. Minimal (Fo) and maximal (Fm) chlorophyll fluorescence was altered markedly by 1-MCP application, but the ratio of (Fm-Fo)/Fm was only slightly affected. The most effective 1-MCP treatment frequency was once per week and, at all elevated temperatures (5, 10, 15, and 20 degrees C), slowed loss of firmness to a greater extent than refrigeration (0 degrees C) alone. Application of 1-MCP resulted in greater retention of firmness than controlled atmosphere (CA) with O₂ and CO₂ at 1.5 kPa and 3 kPa, respectively. Data suggest that 1-MCP application, has the potential to reduce reliance on refrigeration and CA storage for maintaining firmness of 'Redchief Delicious' apple, especially for relatively short storage durations (<50 days) when fruit are harvested within a week of the ethylene climacteric.

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ACCESSION NUMBER: 2001:44609 AGRICOLA
DOCUMENT NUMBER: IND23031477
TITLE: Regulation of genes encoding ethylene biosynthetic enzymes in peach (*Prunus persica* L.) fruit by carbon dioxide and 1-methylcyclopropene.
AUTHOR(S): Mathooko, F.M.; Tsunashima, Y.; Owino, W.Z.O.; Kubo, Y.; Inaba, A.
AVAILABILITY: DNAL (SB129.P66)
SOURCE: Postharvest biology and technology, Feb 2001. Vol. 21, No. 3. p. 265-281
Publisher: Amsterdam : Elsevier Science B.V.
CODEN: PBTEED; ISSN: 0925-5214

NOTE: Includes references
PUB. COUNTRY: Netherlands
DOCUMENT TYPE: Article
FILE SEGMENT: Non-U.S. Imprint other than FAO
LANGUAGE: English

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ACCESSION NUMBER: 2002:45547 AGRICOLA
DOCUMENT NUMBER: IND23278004
TITLE: 1-Methylcyclopropene treatment affects strawberry fruit decay.
AUTHOR(S): Jiang, Y.; Joyce, D.C.; Terry, L.A.
AVAILABILITY: DNAL (SB129.P66)
SOURCE: Postharvest biology and technology, Dec 2001. Vol. 23, No. 3. p. 227-232
Publisher: Amsterdam : Elsevier Science B.V.
CODEN: PBTEED; ISSN: 0925-5214
NOTE: Includes references
PUB. COUNTRY: Netherlands
DOCUMENT TYPE: Article
FILE SEGMENT: Non-U.S. Imprint other than FAO
LANGUAGE: English

AB Strawberry cv. Everest fruit were treated with 1-methylcyclopropene (1-MCP) at various concentrations from 0 to 1000 nl/l for 2 h at 20 degrees C. They were then kept individually in closed but vented containers for 3 days in the dark at 20 degrees C and 95-100% relative humidity. 1-MCP treatment tended to maintain strawberry fruit firmness and colour. However, disease development was accelerated in fruit treated at high (500 and 1000 nl/l) 1-MCP concentrations. 1-MCP treatment also lowered ethylene production. Treatment with 1-MCP inhibited phenylalanine ammonia-lyase (PAL) activity, and lowered increases in anthocyanin and phenolic contents. Comparatively low levels of phenolics in fruit treated at the highest 1-MCP concentration (1000 nl/l) could account for decreased disease resistance of these fruit.

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ACCESSION NUMBER: 2002:19590 AGRICOLA
DOCUMENT NUMBER: IND23256473
TITLE: Internal browning in cold-storage pineapples is suppressed by a postharvest application of 1-methylcyclopropene.
AUTHOR(S): Selvarajah, S.; Bauchot, A.D.; John, P.
AVAILABILITY: DNAL (SB129.P66)
SOURCE: Postharvest biology and technology, Nov 2001. Vol. 23, No. 2. p. 167-170
Publisher: Amsterdam : Elsevier Science B.V.
CODEN: PBTEED; ISSN: 0925-5214
NOTE: Includes references
PUB. COUNTRY: Netherlands
DOCUMENT TYPE: Article
FILE SEGMENT: Non-U.S. Imprint other than FAO
LANGUAGE: English

AB Treatment with 1-methylcyclopropene (1-MCP), the inhibitor of the ethylene receptor, at 0.1 ppm (4.5 nmol l(-1)) for 18 h at 20 degrees C effectively controlled internal browning, a chilling injury symptom, in pineapples stored at 10 degrees C for four weeks. The treatment with 1-MCP also delayed ascorbic acid decline, and arrested the decline in both total soluble solids and ethylene synthesis. The present findings throw light on the role of ethylene in internal browning, and suggest that 1-MCP could be

considered for use commercially to control this important postharvest physiological disorder in pineapples.

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ACCESSION NUMBER: 2002:19588 AGRICOLA
DOCUMENT NUMBER: IND23256469
TITLE: Using 1-MCP to inhibit the influence of ripening on impact properties of pear and apple tissue.
AUTHOR(S): Baritelle, A.L.; Hyde, G.M.; Fellman, J.K.; Varith, J.
AVAILABILITY: DNAL (SB129.P66)
SOURCE: Postharvest biology and technology, Nov 2001. Vol. 23, No. 2. p. 153-160
Publisher: Amsterdam : Elsevier Science B.V.
CODEN: PBTEED; ISSN: 0925-5214
NOTE: Includes references
PUB. COUNTRY: Netherlands
DOCUMENT TYPE: Article
FILE SEGMENT: Non-U.S. Imprint other than FAO
LANGUAGE: English

AB This work is part of a larger effort to determine the effects of hydration on the impact failure properties (loading velocities $> 100 \text{ mm s}^{-1}$) and bruise threshold of apple and pear tissue. Since time is required to dehydrate fruit slightly, and since ripening normally occurs during that time, it is desirable to arrest ripening during the dehydration process to minimize or eliminate ripening effects so that hydration effects can be determined. This experiment used 1-methylcyclopropene (1-MCP) to arrest ripening, and then tested whether 1-MCP affected impact failure properties. Thirty fruit from each of four apple cultivars ('Fuji,' 'Red Delicious,' 'Golden Delicious' and 'Rome') and two pear cultivars ('Bartlett' and 'D'Anjou') were randomly assigned to one of three treatments. The 'fresh' treatment fruit were tested immediately using the procedure described below. The second group was treated with 2 ppm of 1-MCP for 16 h, and the last group was left untreated as a control. The 1-MCP treated samples and the control samples were stored at room temperature in 98 + % RH chambers (to minimize moisture loss) for 10 days and then mass losses were measured and tissue samples were subjected to dynamic axial compression (DAC). Six cylindrical tissue samples from each fruit were loaded to failure (strain rate 80 s^{-1}) at room temperature (approximately equal to 23 degrees C) to determine tissue failure stress, failure strain and shock wave speed. Magness-Taylor (MT) force measurements were made on the same fruit immediately prior to the DAC testing. The MT values showed no significant difference between fresh (control) fruit at time 0 and 1-MCP treated fruit after 10 days at room temperature, except for the 'Bartlett' pears, which ripened and softened over the 10 days. Untreated fruit all showed significantly lower MT forces after 10 days, except for the 'Fuji' apples. DAC measurements showed significant changes in most of the mechanical properties with treatment, but these changes were consistent with the mass loss and corresponding slight dehydration in these fruit. While this work did not conclusively show that 1-MCP stopped the ripening process completely, it did show that smaller changes in the tissue mechanical properties occurred for the treated than for the untreated samples.

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ACCESSION NUMBER: 2002:19587 AGRICOLA
DOCUMENT NUMBER: IND23256467
TITLE: 1-Methylcyclopropene and storage temperature influence responses of 'Gala' apple fruit to gamma irradiation.
AUTHOR(S): Fan, X.; Mattheis, J.P.
AVAILABILITY: DNAL (SB129.P66)
SOURCE: Postharvest biology and technology, Nov 2001. Vol. 23, No. 2. p. 143-151
Publisher: Amsterdam : Elsevier Science B.V.
CODEN: PBTEED; ISSN: 0925-5214
NOTE: Includes references
PUB. COUNTRY: Netherlands
DOCUMENT TYPE: Article
FILE SEGMENT: Non-U.S. Imprint other than FAO
LANGUAGE: English

AB 'Gala' apple (*Malus x domestica* Borkh.) fruit pre-treated with 0.5 microliter L(-)-1-methylcyclopropene (MCP) or air (control) for 12 h at 20 degrees C were exposed to gamma radiation at doses of 0, 0.44, 0.88 or 1.32 kGy at 23 degrees C. The fruit were then stored at 20 degrees C for 3 weeks or at 0 degrees C for 8 weeks plus 7 days at 20 degrees C. Fruit treated with MCP had higher firmness and titratable acidity (TA) than control fruit after storage at either temperature. During the post-irradiation storage at 20 degrees C, irradiation promoted respiration of MCP-treated fruit throughout the 3-week period but had no consistent effect on respiration of control fruit. Fruit firmness and TA decreased with increased radiation dose after 3 weeks storage at 20 degrees C regardless of MCP treatment. Compared to non-irradiated fruit, irradiated fruit had lower TA and similar firmness after storage at 0 degrees C for 8 weeks plus 7 days at 20 degrees C. Some irradiated fruit stored at 20 degrees C for 3 weeks developed internal browning, and MCP-treated fruit had more injury than control fruit. Storage at 0 degrees C after irradiation greatly reduced development of internal browning. Production of volatile esters, alcohols and 6-methyl-5-hepten-2-one by fruit stored at 0 degrees C was reduced. The magnitude of reduction directly increased with radiation dose. It appears that some responses of apple fruit to gamma radiation are influenced by ethylene action and post-irradiation storage temperature.

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ACCESSION NUMBER: 2002:19584 AGRICOLA
DOCUMENT NUMBER: IND23256460
TITLE: Ethylene involvement in the cold storage disorder of 'Flavortop' nectarine.
AUTHOR(S): Dong, L.; Zhou, H.W.; Sonogo, L.; Lers, A.; Lurie, S.
AVAILABILITY: DNAL (SB129.P66)
SOURCE: Postharvest biology and technology, Nov 2001. Vol. 23, No. 2. p. 105-115
Publisher: Amsterdam : Elsevier Science B.V.
CODEN: PBTEED; ISSN: 0925-5214
NOTE: Includes references
PUB. COUNTRY: Netherlands
DOCUMENT TYPE: Article
FILE SEGMENT: Non-U.S. Imprint other than FAO
LANGUAGE: English
AB 'Flavortop' nectarine was either held at 20 degrees C for ripening or

stored at 0 degrees C for 30 days after treatment with 0.1 ppm 1-methylcyclopropene (MCP) at harvest. Half of the untreated fruits were exposed to 15 ppm ethylene during storage. Fruit softening was retarded by MCP both without storage or after storage but not affected by ethylene treatment during storage. Fruits treated with MCP developed severe flesh woolliness and reddening and had lower expressible juice compared to the ethylene treatment. Ethylene production of the fruits following treatment was not affected by MCP but was inhibited after storage while it was enhanced by exogenous ethylene. mRNA abundance of ACC oxidase (ACO), polygalacturonase (PG) and pectin esterase (PE) during storage was also inhibited by MCP, and ACO and PG expression was furthermore inhibited after post-storage ripening. Ethylene-treated fruits had higher message levels of ACC synthase (ACS) and PE than control fruit following storage while ACO levels were higher in control fruit and PG was similar in both. The accumulation of endoglucanase (EGase) mRNA was enhanced by MCP at all stages while inhibited by ethylene after post-storage ripening. The data suggest that a certain level of ethylene production is essential for normal ripening of nectarines after cold storage. Exogenous ethylene during storage enhanced ethylene production after storage, thereby promoting the sequence of cell wall hydrolysis necessary for normal ripening. MCP blocked the ethylene action and inhibited its synthesis after cold storage, subsequently leading to abnormal softening and the occurrence of severe disorders.

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ACCESSION NUMBER: 2001:29721 AGRICOLA
DOCUMENT NUMBER: IND22303763
TITLE: Reduction of ethylene-induced physiological disorders of carrots and iceberg lettuce by 1-methylcyclopropene.
AUTHOR(S): Fan, X.; Mattheis, J.P.
AVAILABILITY: DNAL (SB1.H6)
SOURCE: HortScience : a publication of the American Society for Horticultural Science, Dec 2000. Vol. 35, No. 7. p. 1312-1314
Publisher: Alexandria, Va. : The American Society for Horticultural Science.
CODEN: HJHSAR; ISSN: 0018-5345
NOTE: Includes references
PUB. COUNTRY: United States; Virginia
DOCUMENT TYPE: Article
FILE SEGMENT: U.S. Imprints not USDA, Experiment or Extension
LANGUAGE: English

AB Whole carrots (*Daucus carota* L.) and midrib tissues of iceberg lettuce (*Lactuca sativa* L.) were treated with 42 micromol(.)m⁻³ MCP, then exposed to ethylene. Exposure to 42 micromol(.)m⁻³ ethylene at 10 degrees C increased isocoumarin content approximately equal to 40-fold in both peel and pulp of nontreated carrots within 4 days, but treatment with MCP for 4 hours at 20 degrees C before exposure to ethylene prevented isocoumarin accumulation. Ethylene-induced acidity loss and respiration rate increase in carrots were also prevented by MCP treatment. Ethylene treatment (126 micromol(.)m⁻³) of lettuce at 6 degrees C had induced russet spotting >5% to 10% of the midrib tissue by day 3 and 30% to 35% by day 9, while pretreatment with MCP for 4 hours at 6 degrees C prevented development of russet spotting. The results indicate that ethylene-induced physiological disorders and quality loss in carrots and iceberg lettuce can be prevented

by MCP treatment prior to exposure to ethylene.

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ACCESSION NUMBER: 2001:7544 AGRICOLA
DOCUMENT NUMBER: IND22073768
TITLE: Yellowing of broccoli in storage is reduced by 1-methylcyclopropene.
AUTHOR(S): Fan, X.; Mattheis, J.P.
SOURCE: HortScience : a publication of the American Society for Horticultural Science, Aug 2000. Vol. 35, No. 5. p. 885-887
Publisher: Alexandria, Va. : The American Society for Horticultural Science.
CODEN: HJHSAR; ISSN: 0018-5345
NOTE: Includes references
PUB. COUNTRY: United States; Virginia
DOCUMENT TYPE: Article
FILE SEGMENT: U.S. Imprints not USDA, Experiment or Extension
LANGUAGE: English

AB Broccoli (*Brassica oleracea* L. var. *italica* Plen) was held for 12 days at 10 degrees C in air or in ethylene (1 microliter(.)L-1), with or without prior exposure to MCP (1 microliter(.)L-1) for 12 hours. In a second experiment, the effects of concentration of MCP, prior to exposure to ethylene, were evaluated. Treatment with MCP reduced whereas exposure to ethylene stimulated respiration and yellowing. Treatment with MCP before continuous exposure to ethylene negated the effects of ethylene. The inhibitory effect of MCP on respiration of broccoli exposed to 1 microliter(.)L-1 ethylene was concentration-dependent, while the effect on yellowing was not. The results indicate that the yellowing of broccoli is mediated by ethylene action, and that MCP treatment inhibits yellowing and reduces respiration, even when broccoli is exposed to ethylene.

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ACCESSION NUMBER: 2002:2688 AGRICOLA
DOCUMENT NUMBER: IND23243973
TITLE: Effects of 1-methylcyclopropene alone and in combination with polyethylene bags on the postharvest life of mango fruit.
AUTHOR(S): Jiang, Y.; Joyce, D.C.
AVAILABILITY: DNAL (442.8 An72)
SOURCE: Annals of applied biology, Dec 2000. Vol. 137, No. 3. p. 321-327
Publisher: Warwick : Association of Applied Biologists.
CODEN: AABIAV; ISSN: 0003-4746
NOTE: Includes references
PUB. COUNTRY: England; United Kingdom
DOCUMENT TYPE: Article
FILE SEGMENT: Non-U.S. Imprint other than FAO
LANGUAGE: English

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ACCESSION NUMBER: 2001:31278 AGRICOLA
DOCUMENT NUMBER: IND22434424
TITLE: Effect of fruit maturity on efficiency of
1-methylcyclopropene to delay the ripening of bananas.
AUTHOR(S): Harris, D.R.; Seberry, J.A.; Wills, R.B.H.; Spohr,
L.J.
AVAILABILITY: DNAL (SB129.P66)
SOURCE: Postharvest biology and technology, Nov. 2000. Vol. 20
No. 3. p. 303-308
Publisher: Amsterdam : Elsevier Science B.V.
CODEN: PBTEED; ISSN: 0925-5214
NOTE: Includes references
PUB. COUNTRY: Netherlands
DOCUMENT TYPE: Article
FILE SEGMENT: Non-U.S. Imprint other than FAO
LANGUAGE: English

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ACCESSION NUMBER: 2000:56779 AGRICOLA
DOCUMENT NUMBER: IND22065614
TITLE: Inhibitory effect of 1-MCP on ripening and superficial
scald development in 'McIntosh' and 'Delicious'
apples.
AUTHOR(S): Rupasinghe, H.P.V.; Murr, D.P.; Paliyath, G.; Skog, L.
AVAILABILITY: DNAL (SB317.5.J68)
SOURCE: The journal of horticultural science & biotechnology,
May 2000. Vol. 75, No. 3. p. 271-276
Publisher: Ashford, Kent, England : Headley Brothers
Ltd., [1998-
CODEN: JHSBFA
NOTE: Includes references
PUB. COUNTRY: England; United Kingdom
DOCUMENT TYPE: Article
FILE SEGMENT: Non-U.S. Imprint other than FAO
LANGUAGE: English

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ACCESSION NUMBER: 2001:8547 AGRICOLA
DOCUMENT NUMBER: IND22077204
TITLE: Control of ethylene responses in avocado fruit with
1-methylcyclopropene.
AUTHOR(S): Feng, X.; Apelbaum, A.; Sisler, E.C.; Goren, R.
AVAILABILITY: DNAL (SB129.P66)
SOURCE: Postharvest biology and technology, Sept 2000. Vol.
20, No. 2. p. 143-150
Publisher: Amsterdam : Elsevier Science B.V.
CODEN: PBTEED; ISSN: 0925-5214
NOTE: Includes references
PUB. COUNTRY: Netherlands
DOCUMENT TYPE: Article
FILE SEGMENT: Non-U.S. Imprint other than FAO

LANGUAGE: English

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ACCESSION NUMBER: 2001:8546 AGRICOLA
DOCUMENT NUMBER: IND22077201
TITLE: Inhibition of ethylene action by 1-methylcyclopropene
prolongs storage life of apricots.
AUTHOR(S): Fan, X.; Argenta, L.; Mattheis, J.P.
AVAILABILITY: DNAL (SB129.P66)
SOURCE: Postharvest biology and technology, Sept 2000. Vol.
20, No. 2. p. 135-142
Publisher: Amsterdam : Elsevier Science B.V.
CODEN: PBTEED; ISSN: 0925-5214
NOTE: Includes references
PUB. COUNTRY: Netherlands
DOCUMENT TYPE: Article
FILE SEGMENT: Non-U.S. Imprint other than FAO
LANGUAGE: English

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ACCESSION NUMBER: 2001:26666 AGRICOLA
DOCUMENT NUMBER: IND22304893
TITLE: Responses of early, mid and late season apple
cultivars to postharvest application of
1-methylcyclopropene (1-MCP) under air and controlled
atmosphere storage conditions.
AUTHOR(S): Watkins, C.B.; Nock, J.F.; Whitaker, B.D.
AVAILABILITY: DNAL (SB129.P66)
SOURCE: Postharvest biology and technology, May 2000. Vol. 19,
No. 1. p. 17-32
Publisher: Amsterdam : Elsevier Science B.V.
CODEN: PBTEED; ISSN: 0925-5214
NOTE: Includes references
PUB. COUNTRY: Netherlands
DOCUMENT TYPE: Article
FILE SEGMENT: Non-U.S. Imprint other than FAO
LANGUAGE: English

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ACCESSION NUMBER: 2000:51930 AGRICOLA
DOCUMENT NUMBER: IND22045069
TITLE: Development of apple superficial scald, soft scald,
core flush, and greasiness is reduced by MCP.
AUTHOR(S): Fan, X.; Mattheis, J.P.; Blankenship, S.
CORPORATE SOURCE: USDA, ARS, Tree Fruit Research Laboratory, Wenatchee,
WA.
SOURCE: Journal of agricultural and food chemistry, Aug 1999.
Vol. 47, No. 8. p. 3063-3068
Publisher: Washington, D.C. : American Chemical
Society.

CODEN: JAFCAU; ISSN: 0021-8561
NOTE: Includes references
PUB. COUNTRY: District of Columbia; United States
DOCUMENT TYPE: Article
FILE SEGMENT: U.S. Imprints not USDA, Experiment or Extension
LANGUAGE: English
AB 1-Methylcyclopropene (MCP) was used to evaluate the role of ethylene in development of apple (*Malus x domestica* Borkh.) physiological disorders during storage. Granny Smith, Red Chief Delicious, and Fuji apple fruit were treated with MCP at a concentration of 1 microliter L(-1) for 12 h at 20 degrees C. For all varieties stored at 0 degrees C, ethylene production and respiration rates were reduced for several months following MCP treatment, and firmness and titratable acidity of treated fruit were higher compared to controls. Apples treated with MCP did not develop superficial scald or peel greasiness through 6 months storage plus ripening at 20 degrees C for 7 days. Core flush was not observed in MCP-treated fruit until 6 months after treatment when the incidence was still lower compared to control fruit. MCP delayed the rise in production of alpha-farnesene and reduced accumulation of its oxidation products.

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ACCESSION NUMBER: 2000:30878 AGRICOLA
DOCUMENT NUMBER: IND22032557
TITLE: Impact of 1-methylcyclopropene and methyl jasmonate on apple volatile production.
AUTHOR(S): Fan, X.; Mattheis, J.P.
CORPORATE SOURCE: Tree Fruit Laboratory, ARS, USDA, Wenatchee, WA.
SOURCE: Journal of agricultural and food chemistry, July 1999.
Vol. 47, No. 7. p. 2847-2853
Publisher: Washington, D.C. : American Chemical Society.
CODEN: JAFCAU; ISSN: 0021-8561

NOTE: Includes references
PUB. COUNTRY: District of Columbia; United States
DOCUMENT TYPE: Article
FILE SEGMENT: U.S. Imprints not USDA, Experiment or Extension
LANGUAGE: English

AB Climacteric Fuji apples were treated with 10 microliter(.)L(-1) MCP (1-methylcyclopropene), 2 mmol(.)L(-1) MJ (methyl jasmonate), or a combination of 10 microliter(.)L(-1) MCP and 2 mmol(.)L(-1) MJ. Fruit were kept at 20 degrees C for 15 days after treatment. Production of ethylene and other volatile compounds was measured prior to and 3, 7, 11, and 15 days after treatment. Ethylene production decreased 3 days following MJ treatment and then increased. MCP treatment alone or in combination with MJ inhibited ethylene production. MJ and MCP inhibited production of many volatile alcohols and esters. The production of individual alcohols and esters appears to be differentially inhibited by MJ or MCP. MJ and MCP inhibited not only production of alcohols but also formation of esters from alcohols.

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ACCESSION NUMBER: 2000:21940 AGRICOLA
DOCUMENT NUMBER: IND22025701

TITLE: Relationships between respiration, ethylene, and aroma production in ripening banana.
AUTHOR(S): Golding, J.B.; Shearer, D.; McGlasson, W.B.; Wyllie, S.G.
CORPORATE SOURCE: University of Western Sydney, Richmond, NSW, Australia.
SOURCE: Journal of agricultural and food chemistry, Apr 1999. Vol. 47, No. 4. p. 1646-1651
Publisher: Washington, D.C. : American Chemical Society.
CODEN: JAFCAU; ISSN: 0021-8561
NOTE: Includes references
PUB. COUNTRY: District of Columbia; United States
DOCUMENT TYPE: Article
FILE SEGMENT: U.S. Imprints not USDA, Experiment or Extension
LANGUAGE: English

AB Mature green bananas were treated with the ethylene antagonist 1-methylcyclopropene (1-MCP) at intervals during the 24 h period after initiation of ripening with propylene. Following 1-MCP treatment, the fruits were ripened in either air or propylene while ethylene, carbon dioxide, and volatile production and composition were monitored at regular intervals. The application of 1-MCP significantly delayed and suppressed the onset and magnitude of fruit respiration and volatile production. The 1-MCP treatments also caused a quantitative change in the composition of the aroma volatiles, resulting in a substantial increase in the concentration of alcohols and a decrease in their related esters. The results showed that ethylene has a continuing role in integrating many of the biochemical processes that take place during the ripening of bananas.

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ACCESSION NUMBER: 2000:59930 AGRICOLA
DOCUMENT NUMBER: IND22056746
TITLE: 1-methylcyclopropene inhibits apple ripening.
AUTHOR(S): Fan, X.; Blankenship, S.M.; Mattheis, J.P.
CORPORATE SOURCE: U.S. Dept. of Agriculture, Agricultural Research Service, Wenatchee, WA.
AVAILABILITY: DNAL (81 S012)
SOURCE: Journal of the American Society for Horticultural Science, Nov 1999. Vol. 124, No. 6. p. 690-695
Publisher: Alexandria, Va. :
ISSN: 0003-1062
NOTE: Includes references
PUB. COUNTRY: United States; Virginia
DOCUMENT TYPE: Article
FILE SEGMENT: U.S. Imprints not USDA, Experiment or Extension
LANGUAGE: English

AB An ethylene action inhibitor, MCP, was applied to preclimacteric and climacteric apple (*Malus sylvestris* L. (Mill.) var. *domestica* Borkh. Mansf.] fruit. Experiments were conducted in North Carolina and Washington State utilizing the following cultivars: Fuji, Gala, Ginger Gold, Jonagold, and Delicious. MCP inhibited loss of fruit firmness and titratable acidity when fruit were held in storage at 0 degrees C up to 6 months and when fruit were held at 20 to 24 degrees C for up to 60 days. For all cultivars except 'Fuji', differences in firmness between treated and nontreated fruit exceeded 10 N after 6 months storage. These beneficial effects were seen in both preclimacteric and climacteric fruit.

Ethylene production and respiration were reduced substantially by MCP treatment. MCP-treated fruit had soluble solids equal to or greater than those in nontreated fruit. Storage and shelf life were extended for all cultivars tested.

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ACCESSION NUMBER: 2000:14899 AGRICOLA
DOCUMENT NUMBER: IND22023659
TITLE: Extension of the shelf life of banana fruit by
1-methylcyclopropene in combination with polyethylene
bags.
AUTHOR(S): Jiang, Y.; Joyce, D.C.; Macnish, A.J.
CORPORATE SOURCE: Chinese Academy of Sciences, Guangzhou.
AVAILABILITY: DNAL (SB129.P66)
SOURCE: Postharvest biology and technology, June 1999. Vol.
16, No. 2. p. 187-193
Publisher: Amsterdam : Elsevier Science B.V.
CODEN: PBTEED; ISSN: 0925-5214
NOTE: Includes references
PUB. COUNTRY: Netherlands
DOCUMENT TYPE: Article
FILE SEGMENT: Non-U.S. Imprint other than FAO
LANGUAGE: English

AB The effect of the new anti-ethylene compound 1-methylcyclopropene (1-MCP) in combination with polyethylene bags on the ripening of harvested banana fruit was investigated. 1-MCP treatment delayed peel colour change and fruit softening, and extended shelf life in association with suppression of respiration and C(2)H(4) evolution. Banana fruit ripening was delayed when exposed to 0.01-1.0 microliter 1-MCP/l for 24 h, and increasing concentrations of 1-MCP were generally more effective for longer periods of time. Similar results were obtained with fruit sealed in polyethylene bags (0.03 mm thick) containing 1-MCP at various concentrations, but longer delays in ripening were achieved. The greatest longevity of about 58 days was realised by packing fruit in sealed polyethylene bags with 1-MCP at either of 0.5 or 1.0 microliter/l. Analyses of C(2)H(4) and CO(2) concentrations within polyethylene bags confirmed that 1-MCP suppressed both C(2)H(4) evolution and respiration. Thus, application of 1-MCP in combination with the use of polyethylene bags can greatly extend the postharvest life of banana fruit.

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ACCESSION NUMBER: 1999:72584 AGRICOLA
DOCUMENT NUMBER: IND22008903
TITLE: Effects of ethylene and 1-methylcyclopropene on the
postharvest qualities of 'Shamouti' oranges.
AUTHOR(S): Porat, R.; Weiss, B.; Cohen, L.; Daus, A.; Goren, R.;
Droby, S.
CORPORATE SOURCE: ARO, Dagan, Israel.
AVAILABILITY: DNAL (SB129.P66)
SOURCE: Postharvest biology and technology, Feb 1999. Vol. 15,
No. 2. p. 155-163
Publisher: Amsterdam : Elsevier Science B.V.
CODEN: PBTEED; ISSN: 0925-5214

NOTE: Includes references
 PUB. COUNTRY: Netherlands
 DOCUMENT TYPE: Article
 FILE SEGMENT: Non-U.S. Imprint other than FAO
 LANGUAGE: English

AB Citrus fruits are nonclimacteric and produce only low amounts of ethylene. However, exogenous applied, and possibly endogenous ethylene, may be involved in the regulation of fruit maturation and senescence. We examined the effects of ethylene and 1-methylcyclopropene (1-MCP), an ethylene action inhibitor, on the postharvest qualities of 'Shamouti' (Citrus sinensis L. Osbeck) oranges. Neither ethylene nor 1-MCP had any effects on the loss of fruit weight and firmness. However, ethylene had disadvantageous effects on most other postharvest parameters. It increased the appearance of chilling injury (CI) symptoms, stem-end rot decay, and the content of volatile off-flavours in the juice head space and fruit internal atmosphere. The only protective effect of ethylene during postharvest storage was in reducing the amount of decay caused by mold rots. 1-MCP treatment effectively inhibited the ethylene effects on 'Shamouti' oranges, as indicated by blocking of the degreening process, but was ineffective in restoring the negative effects of ethylene during storage; it even weakened the tissue and increased CI symptoms, decay development, and the accumulation of volatile off-flavours. It is concluded that while high concentrations of exogenous applied ethylene are undesirable during storage, and enhance fruit deterioration, the small amounts of endogenous ethylene produced by the fruits may be required to maintain their natural resistance against various environmental and pathological stresses. In future, we suggest that 1-MCP may be applied as a postharvest treatment to inhibit the degreening process in citrus fruits which are preferably marketed green, but special care must be taken to avoid CI and decay development.

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ACCESSION NUMBER: 2001:3734 AGRICOLA
 DOCUMENT NUMBER: IND22083627
 TITLE: 1-Methylcyclopropene can differentially affect the postharvest life of strawberries exposed to ethylene.
 AUTHOR(S): Ku, V.V.V.; Wills, R.B.H.; Ben-Yehoshua, S.
 AVAILABILITY: DNAL (SB1.H6)
 SOURCE: HortScience : a publication of the American Society for Horticultural Science, Feb 1999. Vol. 34, No. 1. p. 119-120
 Publisher: Alexandria, Va. : The American Society for Horticultural Science.
 CODEN: HJHSAR; ISSN: 0018-5345
 NOTE: Includes references
 PUB. COUNTRY: United States; Virginia
 DOCUMENT TYPE: Article
 FILE SEGMENT: U.S. Imprints not USDA, Experiment or Extension
 LANGUAGE: English

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ACCESSION NUMBER: 97:75447 AGRICOLA
 DOCUMENT NUMBER: IND20598098

TITLE: Effects of chilling on the expression of ethylene biosynthetic genes in Passe-Crassane pear (*Pyrus communis* L.) fruits.

AUTHOR(S): Lelievre, J.M.; Tichit, L.; Dao, P.; Fillion, L.; Nam, Y.W.; Pech, J.C.; Latche, A.

CORPORATE SOURCE: UA INRA-ENSAT, Toulouse, France.

SOURCE: Plant molecular biology, Mar 1997. Vol. 33, No. 5. p. 847-855
Publisher: Dordrecht : Kluwer Academic Publishers.
CODEN: PMBIDB; ISSN: 0167-4412

NOTE: Includes references

PUB. COUNTRY: Netherlands

DOCUMENT TYPE: Article

FILE SEGMENT: Non-U.S. Imprint other than FAO

LANGUAGE: English

AB Passe-Crassane pears require a 3-month chilling treatment at 0 degrees C to be able to produce ethylene and ripen autonomously after subsequent rewarming. The chilling treatment strongly stimulated ACC oxidase activity, and to a lesser extent ACC synthase activity. At the same time, the levels of mRNAs hybridizing to ACC synthase and ACC oxidase probes increased dramatically. Fruit stored at 18 degrees C immediately after harvest did not exhibit any of these changes, while fruit that had been previously chilled exhibited a burst of ethylene production associated with high activity of ACC oxidase and ACC synthase upon rewarming. ACC oxidase mRNA strongly accumulated in rewarmed fruits, while ACC synthase mRNA level decreased. The chilling-induced accumulation of ACC synthase and ACC oxidase transcripts was strongly reduced when ethylene action was blocked during chilling with 1-methylcyclopropene (1-MCP). Upon rewarming ACC synthase and ACC oxidase transcripts rapidly disappeared in 1-MCP-treated fruits. A five-week treatment of non-chilled fruits with the ethylene analog propylene led to increased expression of ACC oxidase and to ripening. However, ethylene synthesis, ACC synthase activity and ACC synthase mRNAs remained at very low level. Our data indicate that ACC synthase gene expression is regulated by ethylene only during, or after chilling treatment, while ACC oxidase gene expression can be induced separately by either chilling or ethylene.

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ACCESSION NUMBER: 96:56891 AGRICOLA

DOCUMENT NUMBER: IND20532611

TITLE: Comparison of cyclopropene, 1-methylcyclopropene, and 3,3-dimethylcyclopropene as ethylene antagonists in plants.

AUTHOR(S): Sisler, E.C.; Serek, M.; Dupille, E.

CORPORATE SOURCE: North Carolina State University, Raleigh, NC.

AVAILABILITY: DNAL (QK745.P56)

SOURCE: Plant growth regulation, Mar 1996. Vol. 18, No. 3. p. 169-174
Publisher: Dordrecht : Kluwer Academic Publishers.
CODEN: PGRED3; ISSN: 0167-6903

NOTE: Includes references

PUB. COUNTRY: Netherlands

DOCUMENT TYPE: Article

FILE SEGMENT: Non-U.S. Imprint other than FAO

LANGUAGE: English

AB A comparison has been made of cyclopropene (CP), 1-methylcyclopropene

(1-MCP), and 3,3-dimethylcyclopropene (3,3-DMCP) in their ability to protect plants against ethylene. In bananas, both CP and 1-MCP are effective around 0.5 nL L-1, and 3,3-DMCP was effective at 1 microliter L-1. Bananas treated with CP and 1-MCP again become sensitive to ethylene at 12 days and those treated with 3,3-DMCP at 7 days. Mature green tomatoes are protected by 5-7 nL L-1 of 1-MCP for 8 days at 25 degrees C and tomatoes treated with 3,3-DMCP at 5-10 microliters L-1 are protected for 5 days. Carnation flowers are protected with CP or 1-MCP after exposure to 0.5 nL L-1 for 24 hours and by 1 microliter L-1 of 3,3-DMCP. The display life of Campanula flowers is increased from 3.3 to 5.4 days by 10 microliters L-1 of 3,3-DMCP and to 9 days by 20 microliters L-1 of 1-MCP. Ethylene inhibition of pea seedlings is reduced by treatment with 1-MCP at 10 microliters L-1 of ethylene but as ethylene is increased to 3000 microliters L-1 growth inhibition increases. 3,3-DMCP treatment causes very little reduction of the ethylene effect even at very low concentrations.

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ACCESSION NUMBER: 84:109073 AGRICOLA
DOCUMENT NUMBER: IND84086474
TITLE: HBr-reactive acids of Malva sylvestris seed oil [Cyclopropene and epoxy acids, fatty acid composition].
AUTHOR(S): Mukarram, M.; Ahmad, I.; Ahmad, M.
AVAILABILITY: DNAL (307.8 J82)
SOURCE: Journal of the American Oil Chemists' Society., June 1984 Vol. 61, No. 6. p. 1060
Publisher: Champaign, Ill. : The Society.
ISSN: 0003-021X
NOTE: Includes references.
DOCUMENT TYPE: Article
FILE SEGMENT: U.S. Imprints not USDA, Experiment or Extension
LANGUAGE: English

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ACCESSION NUMBER: 2004:25916 AGRICOLA
DOCUMENT NUMBER: IND43628610
TITLE: Effects of 1-methylcyclopropene and gibberellic acid on ripening of Chinese jujube (Zizyphus jujuba M) in relation to quality.
AUTHOR(S): Jiang, W.; Sheng, Q.; Jiang, Y.; Zhou, X.
AVAILABILITY: DNAL (382 So12)
SOURCE: Journal of the science of food and agriculture, p. 31-35
ISSN: 0022-5142
NOTE: Includes references
DOCUMENT TYPE: Article
FILE SEGMENT: Non-US
LANGUAGE: English

AB Overripening of Chinese jujube (Zizyphus jujuba M) fruit at the postharvest stage usually results in a dramatic decline in quality. The role of 1-methylcyclopropene (1-MCP) and gibberellic acid (GA) in fruit ripening of Chinese jujube during storage in relation to quality was

investigated. Fruit ripening of jujube was significantly enhanced by ethylene, whereas rates of respiration and ethylene production of the fruit were reduced by 1-MCP. Treatment with 1-MCP or GA delayed the decreases in firmness and vitamin C and reduced the level of ethanol. Furthermore, the effectiveness of 1-MCP was improved by replicate treatments during storage at 20 or 2 (degree)C. In addition, treatment with GA + 1-MCP resulted in additive beneficial effects on ripening inhibition of the fruit.

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SEARCH REQUEST FORM

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Scientific and Technical Information Center

Requester's Full Name: Sabika Ozy Examiner #: 74141 Date: 9/13/04
 Art Unit: 1616 Phone Number 30 20622 Serial Number: 10/810017
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if more than one search is submitted, please prioritize searches in order of need.


Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or unity of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Technique for effectively treating an agricultural product
 Inventors (please provide full names): Yoshiki Kashimura et al

Earliest Priority Filing Date: 3/26/2004

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Please Search for

1)  R as in cl. 1

Example 1-methyl cyclopropene

2) a method of suppressing the deterioration of the quality of agricultural products as in cl. 1-3

Thank you

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Type of Search

Vendors and cost where applicable

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| Searcher Phone #: _____ | AA Sequence (#) _____ | Dialog _____ |
| Searcher Location: _____ | Structure (#) <u>1</u> | Questel/Orbit _____ |
| Date Searcher Picked Up: _____ | Bibliographic _____ | Dr.Link _____ |
| Date Completed: <u>9/22</u> | Litigation _____ | Lexis/Nexis _____ |
| Searcher Prep & Review Time: <u>20</u> | Fulltext _____ | Sequence Systems _____ |
| Clerical Prep Time: <u>20</u> | Patent family _____ | WWW/Internet _____ |
| Online Time: <u>21</u> | Other _____ | Other (specify) _____ |

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